RFP No. 455-005

REQUEST FOR PROPOSALS (RFP)

FOR

MILWAUKEE STATE CRIME LABORATORY TO BE LOCATED

WITHIN

Milwaukee County or Eastern Waukesha County

Issued: Thursday, December 17, 2020

Due Date: Thursday March 4, 2021 by 2:00 PM Central Time

PREPARED BY: STATE OF WISCONSIN
DEPARTMENT OF ADMINISTRATION
DIVISION OF FACILITIES DEVELOPMENT & MANAGEMENT
101 EAST WILSON STREET, 7TH FLOOR
MADISON, WISCONSIN 53703

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I. PROJECT OVERVIEW

The following Request for Proposals (RFP) is being issued by the State of Wisconsin (State), Department of Administration (DOA) for qualified development teams or joint ventures (Proposer) to design and construct or renovate a two-three story state-of the-art forensic science laboratory and supporting office facility containing:

- An estimated 100,000 gross square feet (GSF);
- Parking as described in paragraph I.(B)(2) below;
- Parcel of sufficient size to accommodate a future expansion of up to 25,000 GSF and associated parking

This facility must be located within Milwaukee County or eastern Waukesha County per the specifications in Appendix 1.

The State is seeking cost-effective, well-qualified lease Proposals that detail the Proposer's qualifications, relevant and proven experience in designing and constructing laboratory facilities, financial capability and implementation strategy that meets or exceeds the State's requirements as outlined in this RFP. Well qualified teams must:

- Understand the principles and goals identified in this RFP
- Add/maximize value in the design, development, construction, and delivery of a high-quality State laboratory and office facility with sufficient parking
- Assign a team of professionals with demonstrated experience of working together on similar projects
- Possess the capacity to secure the required financing necessary to complete this Project
- Possess the development expertise necessary to complete this Project

A. Scope of the Project

The State seeks to lease a single-tenant or multi-tenant facility containing an approximately 100,000 GSF crime laboratory and office facility. Both stand-alone and campus settings will be considered. Multi-tenant facilities with limited shared spaces or co-location with other public safety, research or scientific organizations will be considered subject to a co-tenancy lease provision which would require DOJ approval of existing and future co-tenants adjacent to the crime laboratory facility. It is preferred that co-located organizations or organizations on a shared campus have potential synergies and affinities of business operations with the crime laboratory, including applied science-based academic research institutions, research laboratories and health facilities, or forensic operations of federal, state and local government public safety entities. Examples of non-suitable co-tenants include general public office buildings, public defenders, correctional agencies, and any high traffic operation open to the public, including retailers. The proposed site must be able to accommodate future growth of up to an additional 25,000 GSF of office and/or crime laboratory space, along with the corresponding parking and building systems that shall be able to accommodate up to 25% growth.

The facility may be renovated or newly constructed, located within Milwaukee County or eastern

Waukesha County, and within five miles of the interstate system due to accessibility needs and evidence travel between Milwaukee and Madison, as well as for the efficiency and convenience of law enforcement evidence submitters from across the southeast region.

General lease terms include a 20-year Initial Lease Term, four 5-year renewal options, and a Modified Gross Rental Rate (i.e., Lessor to fully maintain the facility), which is comprised of base rent and estimates of operating expenses and various Option to Purchase timeframes. Utilities and real estate taxes will be reconciled to actual costs on an annual basis.

B. Project Components

Proposals in response to this RFP must address how it will deliver the following Project components:

1. 100,000 GSF New State Crime Laboratory and Office Facility

The successful Proposer must provide a 100,000 GSF turn-key crime laboratory and supporting office facility to be located within Milwaukee County or eastern Waukesha County as defined in Appendix 1 in this RFP. The new facility shall be two to three stories (optimally two stories with penthouse) and designed and built and/or renovated in accordance with State technical specifications and design guidelines as provided in Appendix 2 of this RFP. Furniture, fixtures, and equipment must also be provided. The design and construction must be accredited to Federal Standards (ISO 17205:2017 Standards, ANAB AR 3125, and FBI Quality Assurance Standards for DNA Testing) by the ANSI National Accreditation Board (ANAB) (see anab.ansi.org/forensic accreditation). Operational programming requirements are outlined below, with detailed specifications provided in the applicable section of Appendix 3 of this RFP.

Tenant – Department of Justice	**Assignable Sq. Ft.**
Administration, Support, and Information Technology (Section 1)	9,554
Chemistry (Section 2)	15,740
Criminalistics (Section 3)	16,855
DNA (Section 4)	16,195
Crime Scene Response Team (Section 5)	2,650
DOJ Administration (Section 6)	1,339
Building Amenities & Infrastructure – Shared Rooms (Section 7)	8,259
Building Amenities & Infrastructure – Building Components (Section 8)	10,860
Total Estimated Assignable Square Feet	81,452

2. Parking Structure and/or Related Surface Lots

Proposals must provide a total of 185 onsite parking spaces for staff, visitors, vendors and maintenance vehicles comprised of: a) 110 secured 24/7 parking stalls for staff, b) 10 parking stalls for use by law enforcement agencies submitting or picking up evidence and located near the evidence submission entrance, c) 5 parking stalls for use by vendors and staff making deliveries and located near the loading dock, and d) 60 unsecured stalls for use by visitors and located near the public entrance and equipped with two dual electric vehicle charging stations. Secured parking is

defined as onsite, dedicated, fully fenced, security gate with card access and intercom system, highly illuminated, and security camera system capable of complete parking lot surveillance. The parking requirements can be satisfied through the use of a parking structure (above or below ground), surface parking, or a combination thereof. Parking structures must be built in accordance to State specifications as provided in Appendix 2 of this RFP.

II. SELECTION PROCESS

A. Schedule

Given the scope and complexity of this RFP, DOA intends to use the following process to request, receive, and evaluate Proposals and select a Proposer:

Selection Process	Date or Timeline
RFP Posted	December 17, 2020
Proposer's Questions Due to DOA by 2:00 PM CT	January 22, 2021
Responses to Proposer's Questions Posted	January 29, 2021
PROPOSALS DUE by 2:00 PM CT	**March 4, 2021**
Initial Evaluations of Proposals & Property Tours	Approximately 4-6 weeks
Request for Best & Final Offer (BAFO) Letters from Short-listed Proposers	Approximately 1 wk
BAFO Letters Due Date in Sealed Envelope at In-person Interview	Approximately 2 wks
In-person Interviews with Selection Committee	Approximately 2 wks
Final Evaluation	Approximately 2 wks
Letter of Intent (LOI) Issued to Selected Proposer & Lease Negotiations	Approximately 8 wks
WEPA Process in Parallel with Lease Negotiations	
State Building Commission (SBC) & Joint Committee on Finance (JCF)	To be determined
Lease Execution (after SBC & JCF approvals)	Approximately 2 wks
Targeted Tenant Access Date	October 1, 2023
Targeted Occupancy Date	November 1, 2023
Note: These dates are subject to extension at the discretion of the State	

B. Proposer's Questions

On or before 2:00 pm CT on January 22, 2021, Proposers may submit written requests of clarification and/or questions to the DOA by utilizing the form provided in Appendix 5 and submit the completed form via email to doarealestateinfo@wisconsin.gov. Written responses will posted by the DOA on the following website: https://doa.wi.gov/Pages/DoingBusiness/Current-Real-Estate-RFPs-and-RFIs.aspx not later than 2:00 pm CT on January 29, 2021. **Solicitation of information from the State, DOA, or tenant agency personnel other than through the designated form and process described herein is prohibited and may result in disqualification of the Proposer**.

C. Evaluation, Selection, and Award Process

All proposals (Proposals) submitted in response to this RFP will be evaluated by a selection committee based on the criteria listed in this RFP. The final selection will be made by the Secretary of the

Department of Administration. DOA reserves the right to independently identify suitable properties and directly solicit Proposals that best meets the standards and requirements set forth in this RFP.

While monetary terms of each Proposal will be strongly considered, the final selection may not be the lowest cost proposal, as the final selection will be based upon the Proposal that best meets the standards and requirements set forth in this RFP.

The State reserves the right to modify, amend, and/or cancel this RFP at any time and reject any and all proposals at its sole discretion.

The selection of the Proposer will involve the following six-part process:

1. **Initial Evaluation of Proposals**

   An initial evaluation of all properly submitted proposals (see Proposal Submittal Requirements) will be completed by the Selection Committee based upon the criteria listed in Section III. C. Potential property tours will be scheduled and completed for those proposals meeting the general requirements of this RFP. The highest scoring Proposals, the number of which is at DOA's discretion, may be short-listed for further evaluation.

2. **Request for Best and Final Offer (BAFO) Letters**

   Short-listed Proposers will be requested to provide a Best and Final (BAFO) Letter. Within this letter, Proposers are to respond to the Selection Committee's additional questions and/or requested clarifications. BAFO letters also represent an opportunity for Proposers to correct any previously submitted information and/or to provide more attractive proposal terms. BAFO letters must be submitted electronically on the day of the in-person interview.

3. **BAFO Letter Due**

   BAFO letters will be delivered to the Selection Committee via email to doarealestateinfo@wisconsin.gov on the day of the in-person interviews by the close of business.

4. **In-Person or Virtual Interviews and Possible Existing Laboratory Tour**

   Short-listed Proposers may be invited to a live (in-person or virtual) interview with the Selection Committee. An invitation letter will be sent via email with the date, time, and location/format of the interview. The invitation to interview may include a list of questions to be addressed at the interview. Interviews are intended to last for not more than 90 minutes, providing up to 60 minutes for presentations and up to 30 minutes for questions and answers. In addition, Proposers may be asked to tour the existing Milwaukee Crime Laboratory.

5. **Final Evaluation**

   Final evaluations will be completed for all short-listed proposals by incorporating the Initial Evaluations, BAFO Letters and the in-person interviews. If necessary, the Selection Committee may ask for clarifications necessary to make a complete and full assessment. Based upon the final evaluation, the Selection Committee may recommend one or more proposals to the DOA Secretary for review and selection. Final selection authority is vested with the DOA Secretary.

6. **Letter of Intent (LOI)**

   If a recommended proposal is selected by the DOA Secretary, a Letter of Intent will be sent to the Selected Proposer. A LOI represents the State's intentions to pursue a lease with the Selected

Proposer. Should the State be unable to achieve an acceptable lease with the Selected Proposer, it reserves the right to cancel the selection and negotiate with the next highest rated Proposer. The State also reserves the right to cancel this RFP, at any time and reject any and all proposals, at its sole discretion.

III. PROPOSAL SUBMITTAL REQUIREMENTS

Proposals must be submitted utilizing the following format requirements and process:

A. Submission

In responding to this RFP, Proposers must submit the following:

- Three (3) printed copies of the Proposal, which will serve as the official copies
- One (1) electronic PDF copy of the Proposal on a USB Flash Drive

Proposals may be disqualified if the printed and electronic copies are not simultaneously submitted by the Due Date and/or if the contents of the Proposals are not the same.

PROPOSALS ARE DUE BY 2:00 PM CT ON THURSDAY, MARCH 4, 2021 (Due Date).

Proposals received after the Due Date will not be accepted or will be marked late, unopened, and returned to sender.

Sealed copies of Proposals along with a USB Flash Drive shall be hand delivered to the drop box in front of the State of Wisconsin Administration Building located at 101 E. Wilson Street, Madison, WI, or delivered by USPS Certified Mail to the address below and marked as follows:

State of Wisconsin
Department of Administration
Division of Facilities Development & Management
101 East Wilson Street, 7th Floor
P.O. Box 7866
Madison, WI 53703
Attn: RFP #455-005, Milwaukee State Crime Laboratory

Proposers must allow sufficient time for delivery of their Proposals to be received by the date and time specified. Proposals received after the designated date and time will not be accepted regardless of the date of posting. **Please be aware that overnight couriers (such as UPS and FedEx) may not be able to deliver to this address due to COVID-19 related closures.**

B. Format

Proposals should be bound, printed on single-sided 8.5"x11" paper, and either portrait or landscape. For legibility purposes, site plans, schedules, or other larger proposal documents may be printed on 11"x17" paper folded to be equivalent to 8.5"x11" paper. Proposals should be well-organized.

C. Evaluation Criteria

Proposals will be evaluated on the following criteria: 1) Team; 2) Relevant Experience, Certification, and Past Performance; 3) Financial Capabilities; 4) Concept and Design; 5) Implementation Strategy and Schedule; and 6) Lease and Project Economics.

D. Content of the Proposal

Proposals must include the following information:

1. **Introduction Letter (2-page maximum)**

   The introduction letter should identify each firm included in the Proposer Team, affirmatively commit each firm of the Proposer Team to complete the Project components described in this RFP if selected, and **must be signed by an officer of each firm of the Proposer Team**.

2. **Proposer Information**

   Please provide the following information for **each firm** included in the Proposer Team:

   a) Company Information

      1. Firm Name
      2. Contact Person
      3. Business Address (no P.O. boxes)
      4. Phone Number
      5. Email Address
      6. Website (if applicable)
      7. Type of Business Organization (Corporation, LLC, etc.). Joint Venture Proposers may have additional requirements including but not limited to:
         i. Documentation that explains the association's (joint venture) organization for the purpose of entering into a single entity
         ii. Documentation that explains how the association intends to assign its contractual responsibilities among its members (joint ventures)
      8. Number of Years in Business
      9. Roles and Responsibilities for this Project
      10. Identify if the Firm is a Minority Business Enterprise (MBE) or Disabled Veteran-Owned Business (DVB)

   b) Resumes

      1. Please provide the names, resumes, and roles/responsibilities of all individuals who will serve as the key day-to-day contacts for this Project

   c) Public Project Experience

      1. Please provide the current Contractor Certification Threshold of the General Contractor (GC) in the Proposer Team. State Construction Certification criteria will be evaluated in the short-list process. More information on the DFDM Certification process can be found at: https://doa.wi.gov/Pages/DoingBusiness/ContractorCertification.aspx
      2. The General Contractor must meet the following minimum contractor certification qualifications:
         i. Has completed similar work at least 50% of the size/value of the division of work.
         ii. Has access to all equipment, organizational capacity, and technical competence to

perform the work.

iii. Maintains a permanent place of business and has an office in Wisconsin.

iv. Is bondable for separate 100% performance and 100% payment bonds.

v. Has a record of satisfactorily completed projects.

vi. The GC or its principals, in any jurisdiction, are not currently ineligible; has not been debarred, suspended, committed tax avoidance or evasion or otherwise excluded from bidding or contracting by any state or federal agency, department, or authority; nor have employees or members of their organization been disciplined under professional license in previous 10 years.

vii. Has been in business for at least 12 months.

viii. Is a legal entity authorized to do business in Wisconsin and has all necessary, valid and current licenses to do business in the State of Wisconsin.

ix. Has performed at least one public project for a governmental entity.

3. Please provide the title, total project cost, and completion date of the highest dollar value construction project each firm has completed for the State of Wisconsin DOA/DFDM.

4. If a firm included in the Proposer Team has not completed a project for the State of Wisconsin DOA/DFDM, please provide the project name, total project cost, and completion date of the highest dollar value construction project that the firm has completed for another government entity.

d) Workload and Capacity

1. Please identify each firm's current commitments and anticipated new engagements throughout the duration of this Project.

2. Please identify how potential overlap and capacity issues would be addressed to ensure a successful Project for the State.

e) Minority Business Enterprise and Disabled Veteran-Owned Business (MBE/DVB) Participation

1. Please describe the Proposer Team's goals and action plan to encourage MBE/DVB participation on this Project.

3. Relevant Experience, Certification, and Past Performance

a) Demonstration of Experience with All Components of this Project

1. Please identify at least three (3) similar or relevant projects, completed previously by at least one member firm of the Proposer Team, that includes an accredited forensic science laboratory/crime laboratory.

2. For each of the projects listed the following information should be provided:

i. Project name, location and dates during which services were performed.

ii. Brief description of project and physical description (delivery method, cost, square footage, number of stories, type of foundation, structural system, envelope, site area).

iii. Services performed by your team.

iv. Provide any owner-written letters of reference/recommendation about the firms' performance on the project.

v. Owner/User/Architect contact information.

vi. Explanation as to how the highlighted project relates to the current Project being considered. If the firms have multiple offices, indicate the office responsible for each highlighted project.

b) Provide information about the Design Professional portion of the team listing as a minimum the proposed firms that will provide services for and experience of those firms licensed in Wisconsin: architect, structural engineer, MEP engineer(s), civil engineer, landscape architect, lighting consultant, code consultant (may be architecture firm). If the Design Professional and GC have worked together on projects before, these completed projects (regardless of project type) shall be listed.

c) For projects listed in 3(a)(1) above:

1. Describe the Proposer Team's roles and responsibilities; and

2. Provide an end-user reference (name, title, company, telephone number, and email address)

4. Financial Capabilities and Other Required Documents

Proposals must address the Team's financial capability to complete all Project components by demonstrating:

a) Recent experience securing financing for project(s) of similar size and complexity; specifically:

1. Satisfactory evidence of having obtained financing for project(s) with a total cost of $50 million or more in the last five (5) years; and

2. Satisfactory evidence of the:

a. Proof of ownership, control, or pending transaction of a site for the new facility, and

b. Ability to obtain financing for development and land acquisition project(s) with a total cost of $50 million or more.

b) Letter(s) of interest from potential lenders

c) Ability to obtain sufficient bonding capacity and insurance for this Project

d) Balance sheet and evidence of cash and/or cash equivalents sufficient to implement this Project

e) Attestation that no member firm of the Proposer Team has filed for bankruptcy in the last ten (10) years or is currently in bankruptcy

5. Concept and Design for the Milwaukee State Crime Laboratory

Proposals must include an overall master plan and architectural theme for the Milwaukee State Crime Laboratory that incorporates its highest and best use and maximizes value to the State. This master plan should describe:

a) Project size (including massing) and use mix that maximizes value to the State and is economically viable

b) Parking and Transit Oriented Features that meet State needs and provide value

c) Community Connectivity

d) Sustainable Design to achieve an energy efficient facility

e) How the new facility fits into the surrounding area and community

f) How the new facility compliments other forensic science municipal or law enforcement services

g) How the new facility creates ease of transit for and between other forensic science or law enforcement services

6. Implementation Strategy, Budget, and Schedule

Proposals must outline the Proposer's strategy and method to implement the Project including:

a) Project Phasing, Construction Schedule, and Occupancy;

b) Project Budget, Proforma, and Cash Flow Projections;

c) Estimates of the Overall Economic Impact of this Project; and

d) Current Zoning, Path for Public Approvals, and Community Outreach Plan.

7. Lease and Project Economics

a) Lease Structure and Lease Terms (see Proposer's Response Sheet - Appendix 7)

1. Lease Structure: The lease must be structured as a Modified Gross Lease with the Lessor providing any and all building and property management services.

2. Proposed Lease Rental Rate: The lease rate rental shall be quoted as a Modified Gross Rental Rate based upon the rentable square footage, as measured using Building Owners and Managers Association (BOMA) standards, a 20-year initial lease term and four (4), 5-year renewal options. The proposed rental rate is to be comprised of the base rent and estimates of all operating expenses, including but not limited to: utilities, common area maintenance and repairs, grounds maintenance and repairs, property taxes, etc. All utilities and real estate taxes will be reconciled to actual on an annual basis.

3. Capital Expenditures: Lessor will be responsible for all capital expenditures and maintaining a capital reserve fund. Capital expenditures will be defined in accordance with the Generally Accepted Accounting Practices ("GAAP").

4. Option to Purchase: While the State intends to enter into a long-term lease, future acquisition of the facility may be possible. Therefore, all proposals must include an option to purchase with a purchase price identified in Years 1, 3, 5, 10, 15 and 20.

b) Project Costs (see Detailed Estimated Project Costs - Appendix 7).

IV. OTHER CONSIDERATIONS AND RESERVATION OF RIGHTS

A. Other Considerations

1. Procuring and Contracting Agency

The DOA's Division of Facilities Development & Management (DFDM) is the authorized agent for this Project. The DOA will authorize the final selection made for this Project. All negotiations relative to this Project will only be conducted with the DOA's designated contact.

2. Gross Lease Template and Option to Purchase

Proposals must meet at a minimum, the standards and requirements listed herein, including the language contained in of the State of Wisconsin's standard Gross Lease template, which can be found at https://doa.wi.gov/DFDM_Documents/GrossLeaseTemplate.pdf and Schedules I and II, attached herein (Appendix 9).

3. Minority Business Enterprise and Disabled Veteran-Owned Business (MBE/DVB) Participation

Minority Business Enterprises (MBE) and Disabled Veteran Owned Businesses (DVB) are encouraged to respond to this RFP. Any firm that wishes to be certified by the State as a MBE or DVB may contact the DOA Supplier Diversity Program at DOABDMBD@wisconsin.gov or visit their website at: http://www.doa.wi.gov/Divisions/Enterprise-Operations/Supplier-Diversity-Program.

B. Other Considerations

The State reserves the right, in its sole and absolute discretion and as it may deem necessary, appropriate, or beneficial to the State with respect to the RFP, to:

a) Cancel, withdraw, or modify the RFP

b) Modify or issue clarifications to the RFP prior to the Proposal Due Date; in the event the RFP is modified it will be posted here: https://doa.wi.gov/Pages/DoingBusiness/Current-Real-Estate-RFPs-and-RFIs.aspx and all Proposers will be provided a chance to revise their Proposals

c) Request submission of additional information from some or all Proposers following its review of one or more Proposals

d) Waive any irregularity or defect in any submission

e) Reject any Proposals it deems incomplete or unresponsive to the RFP requirements

f) Reject all Proposals that are submitted

g) Reissue the original RFP, issue a modified RFP, or issue a new RFP, whether or not any Proposals have been received in response to the initial RFP

1. Predevelopment and Development Costs

The State is not liable for any costs incurred by a Proposer in replying to this RFP.

In addition, Proposers should be aware of the following:

a) Proposers should draw independent conclusions concerning conditions that may affect the methods or cost of development;

b) Proposer shall be solely responsible for all pre-development (including demolition of existing improvements and due diligence studies such as traffic, geotechnical, storm water management, and other site preparations) and development costs associated with the Project;
c) Proposer shall be solely responsible for all costs related to obtaining necessary permits, approvals, clearances, and licenses at the appropriate time; and
d) All equity and self-funded project pre-development money expended by a Proposer is at the sole risk of the Proposer. The State shall under no circumstances be responsible to reimburse same, whether pre- or post-selection.

2. Change in Proposer's Information

If there are any changes or corrections to any of Proposer's team members or financial information, the Proposer must notify the State by including any such changes in the BAFO letter. The State reserves the right to evaluate the modified Proposal, eliminate the Proposer from further consideration, or take other action as the State may deem appropriate.

3. Ownership and Use of Proposal

Once submitted, all Proposals shall be the property of the State. The State may use any and all ideas and materials included in any Proposal, whether the Proposal is selected or rejected.

4. Communications with Media, Government Agencies, and Community

The Proposers shall not initiate or pursue any discussions or communications with the media, government agencies, and/or the community relating to the Project without first coordinating with and receiving the approval of the State.

5. Selection Non-Binding

The State's selection of a Proposer indicates only its intent to negotiate with the selected Proposer, and the selection does not constitute a commitment by the State to execute a final agreement or contract with that Proposer. Proposers therefore agree and acknowledge that they are barred from claiming to have detrimentally relied on any action by the State, or its contractor, representative, or employee's actions for any costs or liabilities incurred as a result of responding to this RFP.

6. Wisconsin Open Records Law

All information in a Proposer's Proposal is subject to the provisions of the Wisconsin Open Records Law (Wisconsin Stat. 19.31 et seq.). Any information or data in the Proposal that the Proposer claims as proprietary and confidential and should not be disclosed by the State to third parties shall be clearly identified in their Proposal (each page shall be marked as "Proprietary and Confidential") and specified on the Designation of Confidential and Proprietary Information Form as provided in Appendix 8 of this RFP.

7. State Law

Any agreement between the State and the successful Proposer arising from this RFP will be governed, construed, and interpreted in accordance with the laws of the State of Wisconsin. Proposers are advised that under such laws, the State will not indemnify the successful Proposer against claims, demands, suits, actions, proceedings, liabilities, damages, losses, costs, or expenses

of any kind by reason of injury or death to any person or for property damage arising out of or relating to the work to be performed.

8. Wisconsin Environmental Policy Act (WEPA)

An Environmental Assessment (EA) will be required for the proposed construction of the Milwaukee State Crime Laboratory. The EA will be prepared for selected site in accordance with the Wisconsin Environmental Policy Act (WEPA), Wisconsin Statutes 1.11 and Wisconsin Administrative Code Chapter Adm 60 to determine whether an Environmental Impact Statement (EIS) is required for the project.

V. APPENDICIES

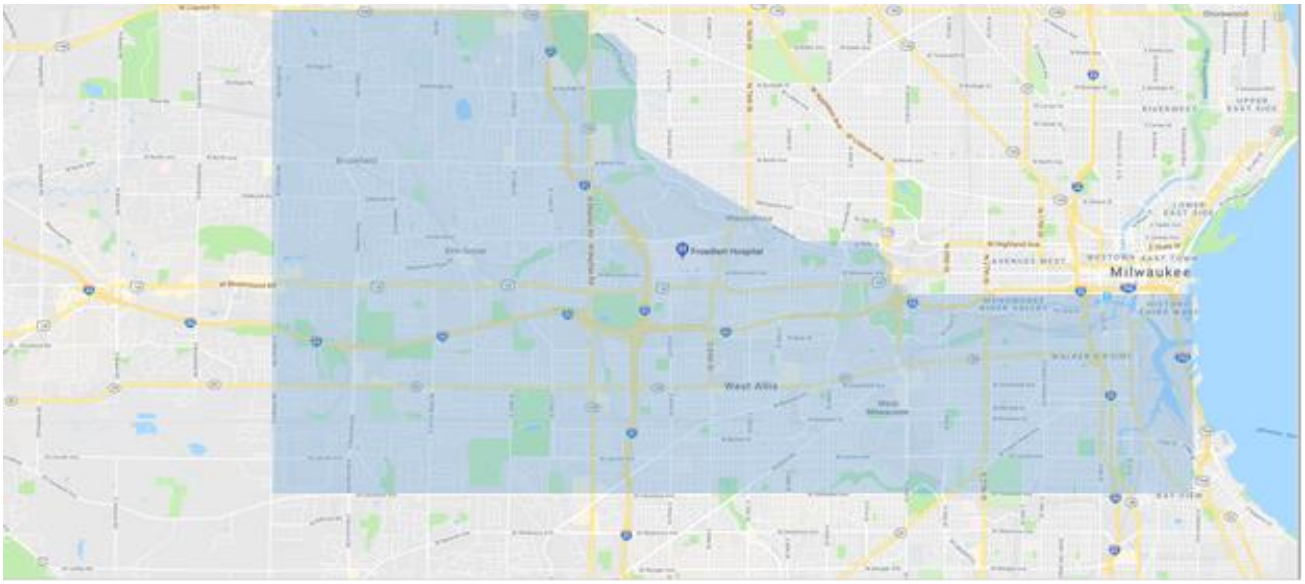
Appendix 1 – Locational Attributes and Site Information

For security purposes, the Department of Justice (DOJ) may choose not to externally identify crime laboratory buildings or publish physical addresses. The Milwaukee State Crime Laboratory requires a location that minimizes foot traffic and general public access and facilitates easy vehicle access to major arterial thoroughfares. DOJ prefers an industrial, medical, research or business park location with ready access to interstate and other major highways, and convenient travel to the downtown Milwaukee area. Residential, retail and high traffic/high visibility locations should be avoided. DOJ will consider locations outside of the preferred area only if they meet the criteria above.

The preferred area runs approximately south of Highway 190/West State Street, north of West Cleveland Avenue, east of South Calhoun Road and west of West Highway 175/Miller Park. DOJ will also consider industrial areas south of I-94 extending east to the lake and south to West Cleveland Avenue, to include the Menomonee River Valley and Third Ward areas.

The following map is provided for informational purposes only.

1. Preferred Area Boundary Map:



2. Site Information:

a) The site should have access to major roads, located near major vehicle transportation arteries, and easily located with minimal turns.

b) Proposer shall provide information on municipal water, sewer, police, and fire service.

c) Proposer shall provide information on telephone, electric, and natural gas utility service.

d) The zoning must be compatible with this use.

e) The new site should not be inhibited by any flood plain or conservancy restrictions, existing buildings that would require razing, or to be a brownfield site. An Environmental Impact Statement (EIS) is expected to be required for this project which would include, but not be limited to: conformance with land use and zoning, scale and urban design, soil suitability, slope, erosion, drainage and storm water runoff, and hazards and nuisances such as unfenced highways or railways, ground vibration, etc.

Appendix 2- Technical Specifications and Design Guidelines

The general intent of the following technical and design guidelines is to reinforce, expand upon, and quantify published design standards and expectations established by the Division of Facilities Development and Management (DFDM) for the Milwaukee State Crime Laboratory. It is not intended to limit design innovation, but rather to ensure that facilities and related physical assets meet their intended functions and are designed, built, and maintainable in a high-quality, cost-effective manner that meets the business needs of the Department of Justice.

1. General Requirements

A. Construction Standards:

The Project shall comply with SPS 360-366 Wisconsin Commercial Building Code. The construction standards, design guidelines, details, requirements for workmanship, and materials specifications for this Project **must** comply with the DOA/DFDM "Master Specifications and Design Guidelines by Division" and "Additional Design Guidelines and Standards" posted at the following website:

http://doa.wi.gov/Divisions/Facilities-Development/Document-Library/Master-Specifications-Design-Guidelines

Minimum design requirements for tenant/agency space development are included in the tenant programming and agency overview documents located in Appendix 3 of this RFP. These documents establish agency needs for room types, space, furniture, proximities, security, and use of building common space. However, while the tenant agency specification identify use, additional meetings and time will be required with DOA, DOJ and the development teams architect and engineer to complete program verification and finalize appropriate engineering specifications and plans to meet best practice and solutions for this critical laboratory facility.

In addition, the design and construction must be accredited to meet Federal Standards (ISO 17205:2017, ANAB AR 3125 Standards and FBI Quality Assurance Standards for DNA Testing) by the ANSI National Accreditation Board (see www.ansi.anab.org/forensic-accreditation).

B. Accessibility Standards:

The Project shall comply with revised ADAAG Standards 2010 and/or DFDM accessibility guidelines whichever is more stringent. DFDM has adopted universal accessibility standards that afford the greatest accessibility as referenced in COMM 62, IBC, ANSI, and or ADAAG.

The building design should serve the broadest range of people, regardless of levels of ability or mobility, age, gender, or physical stature without the need for adaptation or specialized design.

C. Sustainability Standards:

The project shall comply with "DFDM Sustainability Guidelines for Capital Projects" posted at the following website: http://doa.wi.gov/Divisions/Facilities-Development/Document-Library/Master-Specifications-Design-Guidelines.

D. Energy Usage:

The Proposer shall be responsible for implementing additional energy usage requirements as defined in

DFDM Energy Guidelines.

E. Life Cycle Costing (LCC):

The Proposer shall contact local utility companies to determine available demand-side management programs and no-cost assistance provided by these companies to designers and owners. All LCC efforts should be completed in the Design Development Phase of the Project.

Applications:
Basic applications of LCC are addressed within the individual articles herein. In general, LCC is expected to support selection of all building systems that impact energy use: Thermal envelope, passive solar features, fenestration, HVAC (including Energy Recovery Ventilator), domestic hot water, potential geothermal applications, building automation, and lighting. However, LCC can also be applied to building features or involve costs related to occupant productivity, system maintenance, environmental impact and any other issue that impacts costs over time.

Procedures and Approach:
It is important to recognize the significance of integrated building systems design in the overall efficiency of the design. The most effective approach to LCC is to appropriately integrate it into the design process.

A building's design evolves from general concepts to detailed analysis. LCC needs to follow the same approach by focusing first on general concepts and then moving towards a focused detail study.

Further, in order to effectively develop this project, commitments should be made early on regarding building systems and such decisions should be retained throughout the project. This means that proposed building systems should be analyzed for appropriateness during the first stages of a project's Design Development Phase. Then a commitment on direction for systems should be made following this analysis with any further LCC studies focused on the detail within each system.

F. Deliverables:

The successful proposer will provide architectural and/or the space design services required as the project is implemented. These services will include preliminary schematics, plans and documents based on the building plan and may require both paper and electronic (ACAD) documents for review.

Proposer shall expect formal review, comments, and approval of all deliverables by DFDM. Deliverables include but are not limited to the following information on the building, site, and parking structure:

- Preliminary, development, and final building and site design and landscaping plans.
- Final design building information model (BIM) in native format
- "As Built" record documents including cut sheets, final finish samples, commissioning results, and O&M manuals. As Built BIM and ACAD Drawings and native format files are to be provided in hard copy and on a flash drive at the end of the Project. The Proposer may be expected to provide limited assistance to DFDM when uploading the building information model data into the State's system.
- Level 2 Commissioning will be required for this project. Please refer to the following DFDM Master Specifications: http://doa.wi.gov/Documents/DFD/Forms/DOA-4518P-AE- PPM.pdf. Third party commissioning to be mutually agreed upon and cost shared.

Computer Aided Design (CAD):
The Proposer's Architect/Engineer shall meet the drawing guidelines and standards defined per the DFDM CAD Design Standards and shall follow DFDM CAD guidelines for exterior and interior drawing labeling and layering.

The DFDM CAD Design Standards are on the following web site:

http://doa.wi.gov/Default.aspx?Page=dfb0563e-d80d-4eb2-99cf-21e8691bc0fd

DFDM Interior Design Layering Standards are as shown below:

LAYER NAME	PEN #	COLOR	LINEWEIGHT (mm)	DESCRIPTION	NOTES
A-ANNO-DIMS	6	magenta	default	dimensions	
A-ANNO-KEYN	7	white	default	keyed notes	
A-ANNO-LEGN	7	white	default	legend text/notes	
A-ANNO-NOTE	7	white	default	general/job notes	
A-ANNO-NPLT	9	lt grey	default	non plotting information	non plotting
A-ANNO-REDL	1	red	default	redlines	
A-ANNO-REVS	3	green	default	revision notes	
A-ANNO-SYMB	7	white	default	symbols	
A-ANNO-TEXT	7	white	default	general text	
A-ANNO-TTLB	7	white	default	title block information	
A-AREA	1	red	default	area calculation boundaries	
A-AREA-IDEN	7	white	default	area room numbers, calculations	
A-AREA-OCCP	7	white	default	occupant or employee names	
A-AREA-PATT	9	lt grey	default	area patterns, solid fill and hatches	
A-CLNG	1	red	default	ceiling boundaries	
A-CLNG-GRID	6	magenta	default	ceiling grids	
A-CLNG-PATT	9	lt grey	default	ceiling patterns	
A-CLNG-SUSP	1	red	default	suspended elements (not equipment)	
A-DOOR	2	yellow	default	doors- plan drawings	
A-DOOR-IDEN	7	white	default	door tags and numbers	
A-EQPM	3	green	default	equipment, lockers, appliances	
A-EQPM-CLNG	3	green	default	clng mounted eqpm:sprinkler head, strobe	
A-EQPM-FIXD	3	green	default	fixed equipment, fire extinguisher cabinet	
A-EQPM-IDEN	7	white	default	equipment identification and numbers	
A-EQPM-MECH	3	green	default	fin tube, horn/strobe on column, t-stat	
A-FLOR	2	yellow	default	floor boundaries	
A-FLOR-CASE	3	green	default	casework	
A-FLOR-EVTR	2	yellow	default	elevator cars and equipment	
A-FLOR-HRAL	1	red	default	handrails, guardrails, grab bars	
A-FLOR-IDEN	7	white	default	floor identification, numbers and finish	
A-FLOR-LEVL	2	yellow	default	floor level changes, slopes and ramps	
A-FLOR-PATT	9	lt grey	default	floor material patterns and hatches	
A-FLOR-PFIX	3	green	default	plumbing fixtures	
A-FLOR-SIGN	3	green	default	signage	
A-FLOR-SPCL	3	green	default	architectural specialties	
A-FLOR-STRS	2	yellow	default	stairs, steps, risers	
A-FLOR-TPTN	1	red	default	toilet partitions	
A-GLAZ	5	blue	default	glazing and mullions	
A-GLAZ-FULL	5	blue	default	full height glazing and mullions	
A-GLAZ-IDEN	7	white	default	window identification and numbers	
A-GLAZ-PHRT	5	blue	default	partial height glazing and mullions	
A-GLAZ-SILL	2	yellow	default	sills	
A-ROOF	5	blue	default	roof boundaries	

A-ROOF-LEVL	2	yellow	default	floor level changes and slopes	
A-ROOF-OTLN	1	red	default	outline edge	
A-ROOF-PATT	9	lt grey	default	roof material patterns and hatches	
A-WALL	5	blue	default	walls	
A-WALL-EXTR	5	blue	0.40	exterior walls	
A-WALL-FIRE	6	magenta	default	fire rated walls	line type: center
A-WALL-SHFT	5	blue	0.40	shaft walls	
A-WALL-HEAD	6	magenta	default	door and window headers	visible only on ceiling plans
A-WALL-INT	5	blue	default	interior walls	
A-WALL-MOVE	1	red	default	moveable partitions and walls	
A-WALL-PATT	9	lt grey	default	wall material patterns and hatches	
A-WALL-PRHT	1	red	default	partial height walls	
E-FLOOR-DUCT	7	white	default	sleeves, channels	
E-POWER	1	red	default	electrical outlets (wall, floor), switches	
E-LIGHTING	3	green	default	cans, trough fixtures	
E-TELEDATA	2	yellow	default	jacks	
E-SECURITY	2	yellow	default	card reader, RTE, cameras	
Defpoints	7	white	default	defpoints	
I-CUBE-IDEN	7	white	default	cube numbers	
I-FURN	3	green	default	interior furnishings	
I-FURN-CHAIR	3	green	default	chairs and seating furniture	
I-FURN-FILE	3	green	default	file cabinets, bk cases	
I-FURN-IDEN	7	white	default	furniture identification and numbers	
I-FURN-PNLS	1	red	default	systems panels	
I-FURN-POWR	3	green	default	power designation	
I-FURN-WKSF	3	green	default	work surface components	
S-COLS	5	blue	0.40	structural columns	
S-GRID	6	magenta	default	structural column grids	line type: center
S-GRID-IDEN	7	white	0.25	structural column grid identification	

PEN#	COLOR	LINEWEIGHT	DRAWING ELEMENTS
1	red	.35 mm	glazing, partial height walls, handrails, area outlines, redlines
2	yellow	.13 mm	steps, level changes, sills, doors
3	green	.25 mm	furniture, equipment, casework, specialties, signs
4	cyan	.50 mm	not used
5	blue	.70 mm	walls
6	magenta	.18 mm	gridlines, door heads
7	white	.25 mm	text, annotations, identifications
8	dk grey	.70 mm	not used
9	lt grey	.25 mm	patterns, hatches, fills, non-plotting layers

Building Information Modeling (BIM):
The Proposer shall meet the DFDM Building Information Modeling (BIM) Guidelines and Standards for Architects and Engineers at the following website:

ftp://doaftp1380.wi.gov/master_spec/BIM%20Guidelines%20&%20Standards/BIM%20Guidelines%20and%20Standards%20for%20AE%20%207-1-12%20Final%20DRAFT%207-26-12.pdf

2. Site and Building Criteria

I. Site and Infrastructure

Site Access:
The Proposer shall show how the site interacts with existing public transportation options, such as, City/Regional bus lines and bicycle paths or other modes of transportation.

Outdoor/Green Space:
The Proposer should include outdoor seating areas and bicycle parking in the design.

Building Access:
The Department of Justice will require a minimum of 6 separate secured entrances. The Proposer shall provide a separate main lobby entrance for visitors and the general public; a separate lobby entrance for DOJ staff; an entrance for law enforcement to submit and retrieve evidence; an entrance for deliveries located by the dock; an entrance for the vehicle examination bay; and an entrance by the crime scene response garage. All entrances shall have an enclosed airlock vestibule, should be well lit, and include slip-resistant, highly durable flooring.

Please see the individual agency program requirements for additional details of agency operations as they relate to public access as provided in Appendix 3 of this RFP.

Parking:
It is estimated that 185 parking spaces will be needed. 110 of these spaces will need to be in a 24/7 card access secured area.

Additionally, five surface parking spots are required to be provided adjacent to the loading dock for vendor/contractor deliveries and visits.

Handicap parking for visitors and staff and vehicle charging stations shall be near the entrances and signed appropriately.

Drop-Off:
Provide adequate drop-off area by the main entrance that is in scale to the overall building for handicap members.

Materials Delivery/Loading Dock:
The building loading dock will be heated, air conditioned and will not have humidity control. It will need space for loading and unloading of records, computers, supplies, and general office space needs in addition to the gun shredder (See Appendix 3, room 1205 for more information). The loading dock shall be a dropped loading dock or dock with levelers, with a rain-protecting canopy. The covered loading dock shall be able to accommodate 2 bays with one dedicated to recycling. Appropriate recycling disposal and storage shall be planned for the dock area. A separate walk in service door entrance shall be provided in addition to dock openings as noted above. Security cameras, intercom and door card access locking system are to be provided in the loading dock area. [See Security System Requirements in this Appendix Section IV, F. Security CCTV/Security Access Control.]

Please also review tenant vehicle examination bays and crime scene response vehicle storage garages as identified in the tenant specifications Appendix 3. These will be separate and distinct areas from the loading dock.

Setback and Landscape Features:
Restrict landscaping from obstructing views of the security guards and CCTV cameras or interfering with lighting or IDS.

Barriers (bollards, landscaping, etc.) should be strategically positioned around the facility to increase the standoff distance of unauthorized vehicles. Provide vehicle barriers to protect pedestrian and vehicle access points, and critical areas/utilities from penetration by a vehicle.

Access to Non-Public Areas:
Use signage, walls, IDS and electronic access control and/or security guards to establish physical boundaries to control access into critical areas. In a campus environment, install fence, landscaping or other barriers to channel pedestrians to authorized areas or entrances. In addition, there shall be separate visitor and employee entrances.

Parking:
Limit the number of vehicle access points.

Provide barriers to restrict pedestrian access into parking areas to authorized entry points.

If a parking structure is proposed, utilize hardening and venting methods to limit air blast injuries in occupied areas in a parking area. Significant structural damage to the walls, ceilings and floors of the parking area may occur; however, the occupied areas above should not experience severe damage or collapse.

External Lighting:
Proposer shall effectively light the exterior to provide safety for employees and minimize any "dark" spots near or adjacent to the facility and parking areas. Install exterior lighting at entrances, exits, parking lots, garages and walkways, parking areas to entrances and around building perimeter areas.

Exterior Wayfinding & Signage:
Provide a single, internally illuminated, monument-type building address identification sign by all public main entrance drives, in addition to site directional signage.

Proper signage is required to clearly identify the use, proper traffic flow, and wayfinding of the parking lots. Signage shall include ADA signs, permit only signs, visitor only signs, etc.

II. Facility Overview

Building Aesthetic:
The Project shall be designed as a Class A combination office/laboratory building. The building shall be open and inviting, be compatible with surrounding office buildings, neighborhood, and be aesthetically pleasing. The design shall incorporate interior and exterior building elements that convey quality

architectural design and maintain a high level of professional image. The design of the new building shall promote a positive and healthy work environment for all staff. The massing of the building shall be somewhat articulated (more than just a box) without sacrificing an efficient core and modular furniture layout. The exterior envelope shall provide transparency between the exterior and inside public spaces. An atrium space, open stairwell or other multiple story open air type spaces is desired in the building design (See Appendix 3, room 1018 for more information).

The lower floor of the building shall house all of the public and common use functions such as the large training room, demonstration lab and public restrooms. See Appendix 3 of this RFP for more information.

The first floor shall be directly accessible from visitor parking.

Exterior windows to laboratory or controlled areas shall be one-way glass to allow occupants to see out, while providing security and privacy to interior occupants. The need for additional one-way glass for other exterior windows will be dependent upon the location of the windows, the configuration of workstations, the siting of the building and other design and location considerations.

Landscaping:
Proposer's building should provide/have overall landscaping as required and at a level for Class A office buildings. The overall landscaping shall be low maintenance and shall not require an irrigation system to maintain.

Entrances:
Identifiable and signed entrance points should be planned into the facility, see section above regarding building access.

Access for the general public function should be secure and separate from agency staff entrances. All entrances, including the garage and dock entrances, shall have an enclosed airlock vestibule, should be well lit, and include slip-resistant, highly durable flooring.

All entrances will be monitored by security cameras. [See Security System Requirements in this Appendix Section IV, E. Security CCTV/Security Access Control.]

Elevators:
The building should contain a minimum of one passenger elevator and one freight elevator. The passenger elevators and freight elevators shall have security card access and shall service all floors. The freight elevator should be located near the dock area and/or tenant garage spaces. The freight elevators must service all floors of the building including mechanical penthouse and below ground if necessary. It should be capable of transporting large equipment and furnishings. The minimum size is 14'x6' and it shall be a Class A elevator per ASME A17.1 Rule 207.2b.

Interior Wayfinding and Signage:
Upon entering the main building lobby, the public shall be directed both visually and with signage to the reception and waiting areas.

The Proposer shall ensure final design includes a comprehensive signage package including site, life

safety, accessible, entrance, and way-finding signage for both the building and parking areas

All base building, tenant wayfinding, and room number/cube number signage to be included in the project and follow DOA Interior Sign Standards (To be provided during the design development stage to the selected Proposer). Room or area numbering shall be approved by the DOA DFDM interior design team.

Provide one backlit, recessed general building directory or electronic directory centrally located in visitor entrance building lobby. Type and location of exterior signage will be dependent upon location (e.g., monument, building illuminated sign, etc.).

Exterior Doors and Frames:
Entrances and exits shall be commercial aluminum systems. Utilize 12 gauge continuously welded, hollow metal frames and 14-gauge hollow metal doors. Hollow metal shall be galvanized and finished with high performance coatings. All components shall be thermally broken. All exterior and secured locations within the building to have welded hinge pins.

Handrails and Guardrails:
All interior and exterior handrail and guardrail components shall be stainless steel. See DFDM guidelines for anchoring requirements.

Regional Training Room:
Training room to be 3,000 sq. ft., seating for 150 people and should include an overhead projector, white boards, smart boards, Listening RF emitter system, and voice communication. Equipment will be provided by tenant, however blocking, electrical, emitter system and cabling support for these items to be provided for in the project and design.

Locker Rooms:
Locker room areas (Crime Scene Response and Building Amenity) with card reader entrances are specified in Appendix 3 programming. These rooms should be located as specified by each group summarized room requirements. Shower Rooms must contain shower stalls (one being an accessible shower stall), water closets, lavatories, and a changing area with lockers. There should be mirrors over each sink and one full length mirror. Touch free soap and towel dispensers, benches, towel hooks and rod, and an emergency telephone should be included.

Lactation Rooms:
The building shall have one lactation room with card reader door access, three private curtained off areas, each with a chair, counter, and electrical outlet. The room must also contain an upper and lower cabinet area with accessible h/c water sink, touch free soap, dispensers and faucets, a small refrigerator, and a minimum of 10 small lockers for equipment (12”x12”x12”).

Flooring in the lactation room should be carpet and walls to have Type I low or no voc vinyl wall covering. Lower or adjustable levels of lighting are requested in the lactation room area.

Floor Kitchenettes:
Provide two kitchenettes per Appendix 3 programming. Each floor of the secure crime laboratory area will have least one kitchenette adjacent to or adjoining the atrium/commons area. Each kitchenette shall

be equipped with space for:

- Two Side-by-side refrigerators
- Two full-size microwave ovens
- Water hook up for commercial grade coffee maker
- Under-counter trash/recycling containers
- Built-in trash & recyclable bins that are incorporated into lower cabinets
- Upper and lower laminate cabinets
- Hot and cold-water single compartment stainless steel sink
- Water line and water filters for refrigerator, coffeemaker, and sink

Building Breakroom:
Provide one 525 square foot building breakroom per Appendix 3 that should include:

- Locked storage closet with shelving within the room for supplies
- Two double compartment hot/cold-water stainless-steel sinks
- Three refrigerators with ice makers
- Upper and lower laminate cabinets
- Three full-size microwaves
- 4' x 4' tables and chairs
- Built-in trash & recyclable bins that are incorporated into lower cabinets
- Water line and water filters for refrigerator, coffeemaker, and sink
- Blocking, electrical, data and HDMI for wall mounted TV monitor.

Coffee maker will be provided by tenant, refrigerators and microwaves should be provided with the lease.

A 24" space above the counters should remain open to allow space for a full-size coffee maker.

Dedicated outlets are to be provided for the coffee maker and microwave. Provide additional outlets for tenant convenience.

Provide a hands-free paper towel and soap dispenser.

Flooring to be a non-slip recycled vinyl composition tile or Linoleum tile and wall covering to be a washable Type II low voc or no voc vinyl wall covering.

The backsplash wall of each kitchenette area to be ceramic tile.

High Density Storage:
Refer to Appendix 3 of this document for request for high density shelving locations. Proposer to design the floor slab for the appropriate loading and provide the shelving as part of lease

Tornado Shelter:
A tornado shelter should be incorporated into the design of the building.

III. Interior Space Standards and Guidelines

Private Office Guidelines:
Office suites will be allowed for executive level divisions or those requiring separation for security or confidentiality purposes. Example: DOJ Administration.

Division Administrator offices will be located on the windows but avoid corner locations where they might occupy more than one window.

Except as noted in the Summarized room requirements, private offices in state-owned buildings for deputy division administrators, attorneys, and bureau directors may not be located on the exterior window wall. These offices must be located toward the center of the space in order to meet the Sustainable Facilities Policy and the DFDM Daylighting Standards.

Except as noted in the Summarized room requirements, clearstory glass, sidelights, or door lights are to be on all offices and conference rooms to increase light infiltration. These glazed units may not be covered with blinds or other window treatments. See details under General Construction Criteria.

Open Office Systems Guidelines:
Open office system furniture take priority for window access in building planning.

System furniture panels are to be 66" tall or less. Approximately 20 to 30% of the panels should be 54" tall or less. This allows for increased air circulation and light penetration.

Orient 66" tall panel's perpendicular to the window wall. Locate overhead storage units on these panels so they too are perpendicular to the windows. Lower panels should be located parallel to the windows. To reduce soiling wear, overhead flipper doors should not be finished with fabric.

Heating/cooling/ventilating units must not be obstructed, use of open panel systems acceptable.

A minimum of 36" is required for the entrance width into all workstations; long, dead-end corridors within work areas should be avoided.

Review specific tenant lab layout preferences and adjacency requirements in Appendix 3.

Support Area Guidelines:
Conference Rooms and other ancillary areas should be located on the interior of the building. Training rooms and related storage areas are to be located on the first floor.

IV. Commissioning Activities / Services:

The commissioning activities required correspond to DFDM's Commissioning policy and procedures can be found in Section Two of the A/E and Consultant Policy and Procedure Manual at http://www.doa.state.wi.us/documents/DFDM/Forms/DOA-4518P-AE-PPM.pdf

Proposer to provide an independent commissioning agent to complete the Level 2 commissioning activities. DOA/DFDM will participate in the commissioning agent selection process.

Commissioning shall be done for all elements and systems that are performance based.

For those systems that function or are controlled by a parent system such as security, HVAC, lighting etc. functional performance testing is required for each entire system.

For those systems that need to perform independently such as the building envelope, windows, elevators etc. individual functional performance testing is required.

DFDM will provide input to the selected Proposer for inclusion of verification check lists and functional performance test forms into the construction specifications.

DFDM will review Basis of Design/Design Concept to evaluate if construction documents including specifications meet State Project Requirements and DFDM guidelines.

DFDM will work with Developer Team to develop a Commissioning Plan including commissioning team, procedures, system tests, test sampling, milestones and responsibilities.

[Remainder of this page intentionally left blank, Exhibit continues on next page]

3. General Construction Criteria

A. Building Envelope:

The Proposer shall ensure waterproofing and roofing systems shall be reviewed by DFDM engineers and Registered Building Envelope, Roofing, and Waterproofing Consultants.

Rain Screen Design:
All exterior cladding systems shall be engineered using pressure rain screen principles including:

- Requires CMU backing.
- Use of comprehensive sheet weather barriers regardless of structural substrates.
- Use of a single membrane application shall accomplish weather, vapor, and air barriers/retarders.
- Use only applications that include compartmentalized interstitial drainage and vented air space.
- Use only applications of continuous exterior cavity insulation to achieve thermal performance.

Barrier cladding design will NOT be allowed, regardless of testing.

Waterproofing and Roof Design:
Various system opportunities are referenced within the master specification, Division 7. Include a minimum Manufacturer's warranty of 15 years on all systems.

Guarantees and Warranties:
The standard specifications include no dollar limit warranties, extended manufacturer guarantees/warranties, and contractor guarantees/warranties. All guarantees/warranties shall be transferable without cost.

Fenestration Design:
This includes design, construction, or presence of openings in a building. Fenestration includes windows, doors, louvers, vents, wall panels, skylights, storefronts, curtain walls, and slope glazed systems. Each system selected shall be tested for the exposure in which it will be installed.

Life Cycle Testing:
All manufactured units shall contain a minimum AW rating by American Architectural Manufacturers Association.

Thermal Performance:
All assemblies shall employ thermal strut technologies. Poured-in bridge or non-thermally broken components will not be acceptable.

Windows and Natural Ventilation:
All windows shall be fixed. Exterior ground floor windows shall have a ballistic rating of 3-4. First floor windows to have 60-minute attack rate glazing. All ventilation shall be accomplished through the mechanical systems. Provide solar shades at all exterior windows 5% openness with fascia's and side rails. Install room darkening (black out) blinds in any conference rooms, offices, or training

rooms if on the building exterior.

Natural daylight will be provided to the greatest extent possible to the occupied areas of the building; however, skylights are not an acceptable option.

Exterior windows to be one-way to allow occupants to view out while providing privacy and security to the interior occupants.

Testing and Control Samples:
Mock-ups of each wall, roof, and fenestration assembly and assembly interfaces shall be completed for review and approval by DFDM and used for the purposes of quality assurance. Each of the items shall be included in the scope of commissioning.

B. Floor to Floor Dimension:

Floor to Floor Dimension:
The floor to floor dimension shall be a minimum of 15'-4" to allow a minimum 9'- 0" clear ceiling and adequate space for mechanical equipment and ducting. See summarized room requirements in Appendix 3 for rooms that will require additional ceiling height clearances, for example a mezzanine in the Criminalistics vehicle processing bays.

C. Exit Stairs:

Code compliant exit stairs shall be located centrally to encourage employees to take stairs in lieu of the elevator. Interior of stairs enclosure shall be finished to match other building finishes. Provide safety features such as battery backup lighting, areas of refuge and locations for Stryker chairs.

D. Doors, Door Frames, and Hardware Assemblies:

Except specialty doors, as noted below:

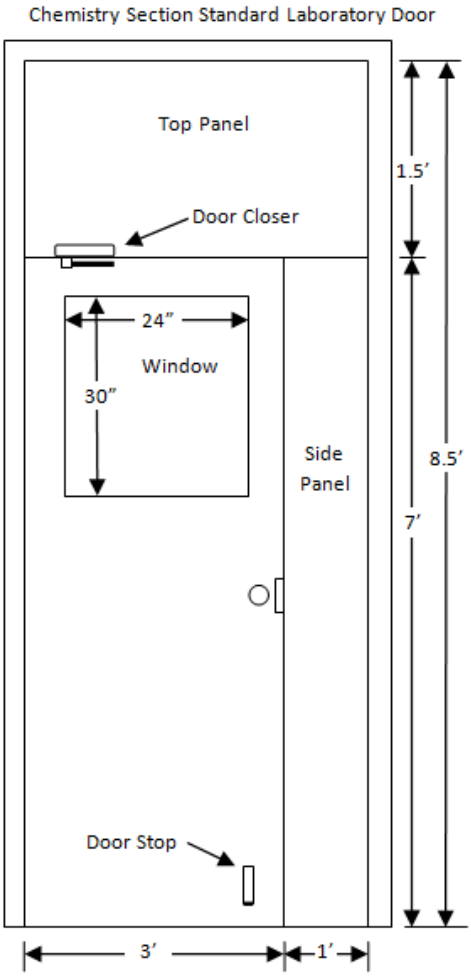
All interior doors to be wood solid core construction with hard wood edges, 3'-0 x 7'-0 x 1-¾", unless otherwise specified, and have appropriate ADA lever-type hardware and locks as determined by its use and security requirements.

All Lock sets and Latch sets shall meet BHMA A156 Grade 1 performance. Door hardware non-removable cylinders and keying to be Primus, to match State's existing master keying system – All keying requirements to be coordinated with tenant. Enclosed offices and conference rooms locksets shall be thumb turn locked from inside for safety with fail safe open feature.

All interior door frames shall be painted 14-gauge hollow metal frames. Doorframes and sidelights are to be constructed in an acoustically sound manner. Each door should include appropriate doorstop.

Heavy-duty stainless-steel double coat hooks should be included on the backs of all office doors.

- **Standard Laboratory Door:**



The Standard Laboratory Door is a 36"W x 84"H x 1.5" thick solid core door. There is a 12"W x 84"H x 1.5" thick solid core hinged panel next to it so the opening can be increased to 48" when needed. The door and the side panel each have three 2.25"W x 4.5"H hinges made of 1/8" thick rust resistant steel and with steel pins. The hinges are inset flush to the door frame and the door (or side panel) and held in place by four screws through each flange. The door can open left or right. Above the door is a 48"W x 16"H x 1.5" thick solid core top panel which is affixed to the door frame but can be removed to allow passage of extra height equipment if necessary. The door frame is epoxy coated steel and contains the door, the side panel, and the top panel. The side panel is held in place by a retractable pin into the floor and one into the top panel. The door has a lever set with latch and a latch plate in the side panel which is tied into the building's programmable access system so the door can be opened with an employee's access card. The door has a 24"W x 30"H window in it. The door has an automatic closer fixed to the door and the top panel. The door has a stop at the floor to keep the door open when needed. The stop folds up out of the way when not in use. If the door is between a lab and a hallway it opens into the lab.

Exterior Door Hardware:

Notwithstanding items required to provide fully functional door assemblies, the following items will be required:

- Continuous non-removable Hinges
- Automatic Door Operators at accessible entrances and exits
- Electronically controlled panic devices
- Fully Mortised Entrance / Exist locksets with electronic strikes
- Door Position Switches
- Request for Exits
- Card readers
- Absence of pull or exterior trim at exit only doors
- Primus ® locking systems

Interior Door Hardware:
Notwithstanding items required to provide fully functional door assemblies, the following items will be required:

- Fully Mortised Locksets and Latch sets
- Electronic strikes where card readers are used
- Door Position Switches and request to exit where card readers are used
- Primus ® locking systems

Clearstory Glass and Sidelights:
Clearstory glass and sidelights are to be used whenever possible to increase light infiltration and should follow DFDM Daylighting Standards for State Facilities.

UNO All enclosed offices and conference spaces, should have full glass fronts If the location does not allow room for that an 18" sidelight is acceptable. Glass in doors, sidelights, and borrowed light is to start at least 9" AFF. Blinds are not permitted on sidelights or glass fronts in offices and conference rooms.

The walls of laboratory areas shall contain windows on the upper half to the extent possible to maximize visibility of laboratory areas from adjacent hallways and offices.

E. Furnishings

Modular Workstations and Office Furniture:
The Proposer shall provide all new furniture for the Department of Justice. See specific building programming for additional information. The Proposer shall work with DFDM on specification and layout.

All furniture (excluding wood) should be GREENGUARD certified as a low-emitting product that meets current indoor air quality standards and should be comprised of a minimum of 20% recycled content. This is a combination of post-consumer and pre-consumer recycled content. Panel particle board components are to be from wood harvested in accordance with the Sustainable Forestry Initiative Program. All wood components are to be certified by the Forest Stewardship Council

Systems Furniture:
System furniture to be of class A type (metal infrastructure and component parts) examples acceptable manufacturers are Herman Miller, Knoll, KI, BSI, Haworth, Kimball. Workstations may be refurbished/recycled or new. Products shall generally afford the owner the option to modify workstations in the field to accommodate reconfigurations and ADA clearance requirements.

Panel fabrics should have 100% recycled content.

Each cubicle should include, at a minimum, 30" deep plastic laminate work surfaces with a corner, Two locking overhead storage bins, one shelf, two locking pedestal files (one file/file and one box/box/file), tack boards or tack able panel surfaces, a pencil drawer, under cabinet task lighting, a wardrobe for coat storage, three outlets and 2 data/one voice outlets. Files and wardrobe may be a combined unit. Each cubicle shall have one worksurface height adjustable.

Each workstation shall be keyed alike for overhead storage, lateral file and pedestals. Proposer shall provide two keys for each lock and shall coordinate final key schedule with DFDM.

Private Offices:
Executive management offices shall be wood. Middle management offices are to be modular metal systems with laminate work surfaces.

Each modular office should include, at a minimum, 30" deep plastic laminate work surfaces with a corner and P-top desk, two locking overhead storage bins, one shelf, two locking pedestal files (one file/file and one box/box/file), tack boards or tack able panel surfaces, a pencil drawer, under cabinet task lighting, a wardrobe for coat storage, two guest chairs, three outlets and 2 data/one voice outlets. Files and wardrobe may be a combined unit. Each cubicle shall have one worksurface height adjustable.

Conference Rooms: Chairs to be upholstered, stackable, and/or mobile for easy reconfiguration of the room. A standard conference room configuration is to have laminate tables with metal bases, modular, and locking casters to be easily moveable. See specific requirements for training rooms within tenant specific programming. The Executive Management conference rooms to have upholstered seating and wood tables that do not need to be mobile.

Break Room: Tables to be laminate with metal bases, modular, and easily moveable. Chairs to be stackable and the seating made of either wood, plastic, or metal with a metal base and easy to clean. Outdoor tables and chairs to be metal.

Reception/Lobby Areas: Seating to be fully upholstered or partially upholstered with wood base. Side tables to be wood. See tenant specific programs for quantity/seating capacity required.

Main Building Reception Desk to be made of systems furniture, but with upgraded finishes including wood and glass.

Seating:
The Proposer to supply all seating (including conference, break area, guest, lab, outdoor seating, reception areas, etc.) except for individual task chairs.

F. Interior Walls:

Except as noted in specific areas, Gypsum Wall Board (GWB) partitions to finished ceiling should be used in the design. Partitions are to provide effective sound attenuation in walls and above the ceiling.

Interior walls at large, medium, and small conference room, locker rooms and restrooms walls are to have effective sound attenuation for privacy. Provide sound absorbing insulation and extend walls to the structural deck. The design of interior wall placement and surfaces (sound absorbing materials) shall enhance acoustics and prevent echoing. Refer to Appendix 3 for additional wall construction requirements.

Evidence storage areas and firearm vaults to be constructed per ASTM standards.
http://www.astm.org/

G. Casework:

All casework in breakrooms, copy workroom or kitchens shall be AWI Custom Grade, full overlay. Cabinetry units in kitchens and breakrooms shall consist of upper and lower units with at least two lockable cabinets. Cabinetry units in workrooms to have a standing height counter with cabinets below and open mail shelves above. Casework is to have high pressure laminate on all exposed sides and surfaces. One (1) adjustable shelf shall be provided per 18" of cabinet space. A portion of all wall cabinets shall comply with ANSI reach ranges. Knee openings are to be provided at sink base cabinets per ADA requirements. Break room casework to have adequate storage for supplies and cleaning materials.

Laboratory Cabinetry:
All cabinetry in the laboratory shall be laboratory grade wooden cabinetry with ¾" thick case panels joined by dowels and glue, ¾" thick bottoms and end panels, ¾" shelves, where specified, adjustable in 1" increments, "five knuckle" door and drawer pulls, and heavy duty drawer suspensions (150 lb. minimum). Unless specified, knee holes do not have a "skirt" under the front edge of the top work surface.

Wall cabinets are 12"D x 30"H and have glass front doors, sliding or hinged. They are mounted 18" above a 36"H bench and 24" above a 30"H bench.

Glassware Storage Cabinetry:
The standard glassware storage cabinet is 4'W x 7'H x 2'D constructed the same as the Standard Cabinetry. The glassware storage cabinet has sliding glass doors and five adjustable shelves.

Standard Laboratory Bench:
Unless other dimensions are given the standard laboratory bench is 30"D and topped by a 1" thick black chemical resistant epoxy material with rounded corners and edges. When the bench is against a wall there is a 4"H backsplash made of the same material along each wall. Unless otherwise specified the bench is held up by base cabinets (see Standard Cabinetry below) with a combination of kneeholes, drawers, and cupboards. These will be specified when the design is made. In each case Standard Laboratory Benches will be specified as 30"H or 36"H. When legs are specified for holding up the bench top, they are 2.25" square wood legs which match the wood cabinetry.

Loading Dock Area:
Provide a 6’ long minimum, standing height, counter for equipment check-in.

Building Mailroom:
Provide upper and lower cabinets with counter space for mail sorting and assembling. See tenant programs in Appendix3of this RFP for specific tenant mailroom requirements.

H. Ceilings:

To ensure proper day lighting design techniques, the ceiling heights must be studied in order to bounce light as deep into the space as possible.

Ceiling tile shall have a minimum Ceiling Attenuation Class (CAC) of 35 and Light Reflectance (LR) of 0.89. Increased CAC to be provided through the use of a sound masking system. Ceiling tile shall be tegular, and color is to be white. Minimum Recycled Content to be 74%. Restrooms, locker rooms, janitor's closets and other wet areas ceiling to be provided with appropriate moisture resistant surface.

Ceiling in public lobby, elevator lobby (if applicable), and large training room shall be upgraded with soffits, bulkheads, and height level changes to add architectural interest and support a professional image. In addition to standard lighting, high efficiency accent lighting shall also be provided in these spaces and must be approved by DOJ.

Provide 4% ceiling material attic stock of each type, to be left on site upon completion of the project.

Standard finished office ceiling height in office areas to be 9’-0”. Laboratory areas to be 10’-0”- 12’-0”. Refer to Appendix 3 for areas/room with that will also need additional height, for example the mezzanine in the Criminalistics vehicle processing bays.

I. Flooring:

Provide integral recessed walk-off mats with floor drains at public and staff entrances. The design solution should control moisture from foot traffic in inclement weather, yet still create an aesthetically pleasing and easily maintainable space.

Entry level public vestibule and main lobby shall have hard surface natural flooring such as stone. Flooring is to be of highly durable material, slip resistant, and shall include a penetrating sealer in place of the topical coating of wax.

Restroom flooring shall be non-slip ceramic or porcelain tile with matching tile base.

All grout to be epoxy.

Stairwells flooring, if applicable, shall be of non-slip material, resistant to stain and easy to clean.

Carpet: General business open office areas, private offices, waiting areas (excluding main entrance

lobby), meeting rooms, copy areas and rooms, and lactation rooms shall be carpeted with commercial grade 24 oz. Solution dyed nylon carpet tile.

Kitchenettes and break room shall have linoleum flooring or vinyl composition tile with recycled content, and both shall be Low VOC or no VOC including adhesives and washable low voc or no voc vinyl wallcovering.

Voice and Data Communication rooms to have static dissipative vinyl composition tile with recycled content and low VOC or no VOC including adhesives.

Laboratory areas to have smooth, chemical resistant, fatigue reducing material sheet flooring, which is seamless, not slippery when wet and can stand up to the constant use of wheeled chairs.

Refer to Appendix 3 for additional flooring detail.

Provide 4% minimum attic stock for each type of flooring.

J. Interior Wall Finishes:

Wall Coverings:
Main corridors, building lobby, elevator lobbies, general public areas, break room and kitchenettes, shall be covered with Type II low voc or no voc vinyl wall covering. Provide 5% attic stock for all materials.

Wall treatment around the drinking fountains shall be non-water absorbing.

Provide chair railing in large meeting areas and waiting rooms and corner guards on exposed corners and columns and where carts, dock equipment etc., will be present. See Specialties.

Paint:
Texture of painted surfaces in general office areas to be rolled satin finish, for the restroom painted wall areas which shall be semi-gloss. All laboratory areas to be stain resistant semi-gloss paint.

The project is to provide paint attic stock equivalent to 4% coverage area for each color.

Ceramic Tile:
Walls in toilet and shower rooms shall be tiled. Ceramic tile to be full height on wet walls and 60" AFF on all other walls. Shower is to be tiled to their full height. Kitchenette and break room back splash are to be ceramic tile. See additional ceramic tile requirements listed in Appendix 3.

K. Specialties:

General:
Provide all necessary accessories including but not necessarily limited to:

- Corner Guards: Provide 48" high commercial grade corner guards. 1 ½" x 1 ½", (Institutional Products Corp. (IPC) brand or equal) on all outside corners and columns.
- Restroom Accessories: Coat Hooks, shelves, mirrors, and touch less soap, faucets and paper dispensers are to be installed in restrooms and locker rooms.

- Toilet partitions to be ceiling mounted. Include water saving fixtures and automatic flush for toilets.
- Provide large, plastic waste and recycling bins at all kitchenettes, training, conference, and public waiting area. Provide for each office, cubicle and small conference room a 9" x 13" x 16" high plastic recycle bin. Provide waste containers intermittently in office areas and large waste and recycling containers appropriate for outdoor use in parking lot, entrance, and outdoor dining area.
- Lessor to provide Fitness Equipment (2) treadmills, (1) stationary bicycles, (1) stair climbers, and (1) weight set. Maintenance contracts will be by Lessee.
- Two 30' cone tapered aluminum flag poles shall be provided at the exterior main entry.

All training, conference, and meeting rooms with 10 occupants or more shall be provided wall strips to display presentation materials.

The following equipment to be provided by tenant; however, blocking, and electrical, voice, data and cabling for these items to be coordinated and provided for in the design:

- Training, conference room equipment (projector, smart boards, flat screen TVs, ceiling mounted or recessed projectors).
- Fire extinguishers in fully recessed cabinets shall be provided.
- AED in fully recessed cabinets shall be provided and alarmed to Capitol Police.

4. Building System Criteria

The Crime Lab operational schedule for employees is typically Mon-Fri (6:00am to 6:00pm). Weekends and Holidays (7:00am to 3:30pm). Typical weekend occupancy would be laboratory spaces only (all sections-DNA/Chemistry/Criminalistics). Occasional over time could increase the number of staff for all lab sections/staff working on weekends.

The building support systems will operate 24/7 year-round to support ongoing crime laboratory operations.

A. Heating, Ventilation and Air Conditioning (HVAC) Systems

Outdoor Design Conditions

System		Dry Bulb Temperature (°F)	Wet Bulb Temperature (°F)
Summer	System Design (1)	89	77
	Cooling Tower Design	83.5	79
Winter	System Design (2)	-10	-

(1) Based on Cooling DB/MCWB for Milwaukee, County as published in Wisconsin Building Code.

(2) Based on Heating DB for Milwaukee, County as published in Wisconsin Building Code.

System Design Conditions

System	Design Temperature [1] (°F)	Differential Temperature [1] (°F)
Chilled Water	42	14
Tower Water	85	10
Heating Hot Water	130	20
Preheat Hot Water	120	30

(1) Refers to circulated fluid temperature unless otherwise indicated.

Terminal Device Design Conditions

System	Design Temperature [1] (°F)	Differential Temperature [1] (°F)
Cooling Coils	42	14
Preheat Coils	120	30
Reheat Coils	130	20
Perimeter/Misc. Heating	130	20
Air Handling Unit Supply Air	55	N/A

(1) Refers to circulated fluid temperature unless otherwise indicated.

Indoor Design Conditions, Ventilation Rates and Pressure Relationships

Space Criteria							
Room	Temperature (°F) [2]		Humidity (%RH) [3]		Minimum Air Change Rate (ACH) [4]		Pressure Relationship
	Min.	Max.	Min.	Max.	Occ.	Unoc.	
Office, Conference and Administrative Support Areas	68	76	30	50	(5)		Neutral or Positive
Laboratory	70	75	30	50	6	4	Negative
Lab Support Space	70	75	30	50	6	4	Neutral
Evidence Storage	68	68	30	40	See room data sheets		Negative
High Use Chemical Laboratory	70	75	30	50	8		Negative
Toilet rooms/Janitor Closets					(5)		Negative
Corridor					(5)		Positive to Laboratory

Space Criteria							
Room	**Temperature (°F) [2]**		**Humidity (%RH) [3]**		**Minimum Air Change Rate (ACH) [4]**		**Pressure Relationship**
	Min.	**Max.**	**Min.**	**Max.**	**Occ.**	**Unoc.**	
Breakroom							Negative
Telecommunication Rooms / Computer Server Room	72 (year-round)		Mechanical humidification not planned		NR		Neutral
Mechanical and Electrical Rooms	60-80°F		Mechanical humidification not planned		NR		Neutral
Elevator Machine Room	75 (year-round)		Mechanical humidification not planned		NR		Neutral

(1) Minimum – Winter Heating
Maximum – Summer Cooling.
Occ. – Occupied Air Change Rate
Unoc. – Unoccupied Air Change Rate
NR – No requirement
N/A – Not applicable.

(2) Systems must meet the setpoint temperature with a ± 1°F accuracy unless otherwise noted.

(3) Systems will be designed to meet the indicated relative humidity with a ± 5% accuracy unless otherwise noted.

(4) Total air changes per hour for supply air in positive pressure or neutral rooms or return/exhaust air in negative pressure rooms.

(5) Based on Table 6-1 of ASHRAE 62.1 Standard 2013.

- **Exact design space temperature and humidity to be verified with DOJ in the design phase.**
- **Temperatures listed above are for occupied time periods. Laboratory, lab support and evidence storage shall be maintained at occupied temperatures at all times. Temperatures for office, conference, administrative support, toilet rooms, corridors, and breakrooms can be varied up to +/- 8 degrees during unoccupied time periods**

Internal Load Density					
Space	**Lighting Density (W/sf) [1]**	**Equipment Density (W/sf) [1]**	**Occupant**		
			Occupants per 1000sf [2]	**Sensible BTUH [3]**	**Latent BTUH [3]**
Offices and Administrative Support Areas	1.0	1.0	50	250	200
Conference	1.2	2.0	5	250	200

Internal Load Density					
Space	**Lighting Density (W/sf) (1)**	**Equipment Density (W/sf) (1)**	**Occupant**		
			Occupants per 1000sf (2)	**Sensible BTUH (3)**	**Latent BTUH (3)**
Laboratory	1.4	6.0	25	250	200
Laboratory Support Spaces (shared Equipment Spaces)	1.4	10	25	250	200
Computer Rooms/MDF/IDF Rooms	1.7	To be determined by actual equipment load	-	-	-
Locker rooms	0.8	0	-	275	475
Corridor	1.0	0	-		

(1) Actual load will be used where higher than the listed value.

(2) Occupant density in each space will be based on code adopted ASHRAE Standard 62.1 or the actual occupant density listed in the facility program.

(3) The occupancy heat rejection will be based on ASHRAE Handbook of Fundamentals 2013.

Acoustic Criteria

Sound attenuation equipment shall be provided as needed to achieve the following noise levels.

Space Type	NC Levels ([1])
Laboratory with fume hood	NC 45
Laboratory without fume hood	NC 40
Support Spaces	NC 40
Open Office	NC 35
Private Office	NC 30
Conference Rooms	NC 30

(1) Requirements and criteria will be further evaluated as design progresses

Systems Diversity

In conjunction with the variable flow systems serving the building, an HVAC equipment sizing diversity shall be applied to the design supply air quantities for sizing the primary heating, and cooling system equipment. Diversity factors will be based on expected use factors and maximum building population as agreed upon with DFDM.

System	Type	Diversity Factor
Terminal Systems	-	100%
Air Handling System	Occupant	85%

System	Type	Diversity Factor
	Lighting	90%
	Equipment	85%

Fume Hood Density

Refer to programming documents.

Lab Equipment Exhaust

The exhaust air requirements for fume hoods will be based on maintaining a face velocity of 50 fpm through the open sash with the sash 100% open.

HVAC and Process Piping Systems Descriptions

This section includes general descriptions for HVAC and process piping systems. Refer to Pipe Distribution Criteria and Equipment and Reliability Matrix for more detail.

Humidification System

System Description

System will consist of a packaged, local gas-to-steam generating unit provided for each air handling unit containing a humidifier.
RO water will be utilized for humidification system.
Humidification steam will be distributed at approximately 0.5 psig to humidifier (steam dispersion unit) in air handling units. Untreated humidification steam condensate from the humidifiers will be drained to hub drain via an after cooler.

Equipment and Components

Gas-to-steam generators will be constructed of 304 stainless steel.
Steam dispersion unit will be panel type, 304 stainless steel and located within air handling unit. Humidifier manifold shall be insulated.

Chilled Water System

System Description

Chiller plant shall be located on the ground floor and shall consist of **a minimum of 2** water chillers, 3 variable flow primary pumps, distribution piping, cooling coils in air handling units, and fan coil units.
Chilled water system will be variable volume system utilizing a modulating 2-way control valve at cooling coils of each cooling coil. Each chilled water pump will be provided with variable frequency drive (VFD) with a bypass starter.
A differential pressure transmitter between the chilled water supply and return mains will be utilized to vary the speed of the pumps, via VFDs, to maintain a constant differential pressure between the piping mains.
Automatic bypass valve will be provided to maintain minimum differential pressure between supply and return pipes when pump is operating at minimum speed.

Equipment and Components

Water chillers will be electric centrifugal type with R123, R134a or R-514a refrigerant.
Chiller pumps will be double suction horizontal split case centrifugal type with variable frequency drives.

The chilled water system will also include the following components:

- Automatic chilled water isolation valves for each chiller
- Chilled water flow meters for each chiller
- Chemical pot feeder
- Bypass water filter
- Air separator
- Bladder type expansion tank
- Make-up water assembly
- Cooling coils
- Fan coil units

Cooling Tower System

System Description

Cooling tower will be multiple cells and will provide 100% of the chiller capacity.
Heaters will be provided in tower basins to prevent water from freezing during cold weather.
Tower will be induced draft crossflow.

Heating Hot Water System

System Description

Heating hot water system will serve AHU heating coils and terminal heating devices such as reheat coils, unit heaters, finned tube and cabinet unit heaters.
Heating hot water system will be primary/secondary variable volume system utilizing a modulating 2-way control valve at each terminal heating device. Distribution pumps will each be provided with VFD. A differential pressure transmitter between the supply and return mains will be utilized to vary the speed of the pumps, via variable frequency drives, to maintain a constant pressure differential between the piping mains.

Equipment and Components

A minimum of 4 gas fired hot water boilers shall be provided and shall be condensing, stainless steel sealed combustion without Giannoni heat exchangers. Provide primary circulation pumps for each boiler and a minimum of 3 distribution pumps which shall be base mounted end suction centrifugal type with VFDs.
The heating and reheat water system will also include the following components:

- Chemical pot feeder
- Bypass water filter
- Air separator
- Bladder type expansion tank
- Make-up water assembly

- Reheat coils
- Unit heaters
- Cabinet unit heaters
- Finned tube elements
- Appropriate valving and piping specialties

Glycol Water Heat Recovery System

System Description

Glycol water heat recovery system pumps will circulate glycol water to heat recovery coils located in laboratory air handling units and to heat recovery coils located in laboratory combined exhaust system to recover waste heat. Glycol heat recovery system will utilize a 30% ethylene glycol/water solution.

Equipment and Components

Distribution pumps will be end suction centrifugal type.
The system will consist of the following additional components:

- Bladder type expansion tank
- Air separator
- Glycol water make-up system
- Appropriate valving and piping specialties
- Modulating 3-way valve(s) for frost control

Fuel System

Natural Gas

Natural gas will be piped from the utility to all gas fire equipment.

Fuel oil

Fuel oil will be stored with or near the generator. The tank will be protected from fire and ballistics per UL listings. Integral controls, pumps and polishers will be included. Fuel oil will be piped from the tank to the generator only.

Pipe Distribution Criteria

Piping Distribution Criteria (see DFDM master specifications for additional information. Grooved piping is not allowed)	
System	**Material**
Humidification	Hard pipe or flexible pipe depending on the distance between the units. Piping will be carbon steel with threaded fittings for piping 2” and smaller and with welded fittings for piping 2-1/2” and larger.
Chilled Water	Type L copper piping with soldered fittings for pipes 2" and smaller and ST carbon steel piping with welded fittings for pipes 2-1/2" and larger. Unions will not be provided at terminal heating devices in copper piping.

Piping Distribution Criteria (see DFDM master specifications for additional information. Grooved piping is not allowed)	
System	**Material**
Heating Hot Water	Type L copper piping with soldered fittings for pipes 2" and smaller and ST carbon steel piping with welded fittings for pipes 2-1/2" and larger.
Glycol Water Heat Recovery	Type L copper piping with soldered fittings for pipes 2" and smaller and ST carbon steel piping with welded fittings for pipes 2-1/2" and larger.
Cooling Tower Condenser Water	Type L copper piping with soldered fittings for pipes 2" and smaller and ST carbon steel piping with welded fittings for pipes 2-1/2" and larger.

Air Handling Systems

System Description

Combined Laboratory/Office Air Handling System
Factory fabricated custom air handling units manifolded to serve the common air system shall serve all areas of the building (laboratory/office/ admin/learning center). Air handling units shall be located in indoors in a penthouse mechanical room. System will be a single duct; variable air volume reheat system. AHUS will have chilled water-cooling coils, humidifiers, hot water heating coils with circulating pumps, run around heat recovery coils, MERV 7 prefilters and MERV 14 final filters.

Air systems shall include space and access to install bi-polar ionizers in the future. Provide sufficient power in nearby panel to power future bi-polar ionizers.

Air systems shall include space and access to install UV disinfection in the future. Provide sufficient power in nearby panel to power future UV.

Air supplied to all laboratory spaces will be exhausted to outdoors. No air from the laboratory or laboratory support spaces will be returned to the air handling units.
Air supplied to office/admin/learning center will be returned to the air handling units or relieved to outside via return/relief fans. The remaining portion of air not returned to the air handling unit will be utilized as make-up air for the exhaust systems and building pressurization.
Ducted return air system will be used instead of return air ceiling plenum to return air from the spaces back to the AHU. The relief air from the air handling unit shall be relieved through the mechanical room to provide conditioning of the mechanical room when available.

Air handling units will operate 24 hours per day, 365 days per year.

Equipment and Components

Supply fans will be direct drive plenum type with airfoil blades. Fan speed and air volume will be modulated through variable frequency drives (VFDs) controlled by supply duct static pressure controller.

Return fans will be direct drive, mixed flow inline type. Fan speed and air volume will be modulated through VFDs controlled by return fan discharge static pressure controller.

Design Criteria

Air Handling Unit Maximum allowable nominal face velocities	
Air Intake Louvers	350 fpm through free area of louver
Relief Hoods	800 fpm through free area of louver
Hot Water Heating Coils	650 fpm
Energy Recovery Coil	450 fpm
Chilled Water-Cooling Coils	400 fpm
Pre-filters	450 fpm
Final filters	450 fpm
Sound Attenuating Devices	Located in ductwork: Maximum 1,200 fpm or maximum 0.20" w.g.

(1) Coil and filter face velocities are based on unit design airflow capacity (not operating flow rates).
(2) Outside air intakes will be designed to not allow snow or rain to be drawn into the filters and coils. Outside air intakes shall be designed to drain any water from plenum to prevent any dripping from plenum.

Combined Laboratory Exhaust System

Laboratory and associated spaces will be served by a combined central exhaust air system. The system will combine laboratory fume hood, snorkel and canopy hoods with laboratory general exhaust. System will consist of heat recovery unit or units located in penthouse and exhaust fans with a common plenum located on the roof. The fans are intended to operate in parallel and will each be sized for a fraction of the design load.

Laboratory exhaust system will be variable air volume. Provide outside air bleed damper and inlet to maintain minimum stack velocity when system flow is reduced below safe stack velocity.
System will operate 24 hours per day, 365 days per year.

Equipment and Components

Fans and heat recovery coils will have baked heresite chemical resistant coating on surfaces in contact with air stream.

Fans will have packless type sound attenuating devices on the exhaust main, and the outside air by-pass duct.

Heat recovery coils in a heat recovery unit(s) located in the penthouse or on the roof. 30% pleated filters will be provided at the inlet of coil with face damper and by-pass damper/duct around filter and coil to allow serving of filter and coils while the exhaust fans are operating.

Design Criteria

Exhaust System Unit Maximum allowable nominal face velocities	
Heat Recovery Coils	450 fpm
MERV 7 Filters	500 fpm

Air Terminal Devices

Spaces shall be zoned having similar interior occupancy/loads, similar sizes and similar exterior exposures with no more than three offices/rooms on one zone. Labs, lab support and lab related spaces, executive management offices and conference rooms shall have dedicated thermostats, VAV and perimeter heat control for each room (i.e. have separate zones). Provide isolation/service valves for all major piping branches to allow portions of the systems to be serviced without shutting down the entire building. At a minimum provide isolation/service valves at each floor or major zone.
Return air terminal devices will be provided in all spaces with return air for pressure control.
Air terminal devices will be utilized for fume hoods, snorkel exhausts, and general exhaust.
Air terminals shall be venturi style when VAV fume hood system is utilized in space. Air terminal devices will comply with DFDM specifications.

Non-Lab or General Exhaust Systems

System Description

Chiller Room Exhaust System
The system will service the chiller room.
System will consist of one exhaust fan that will be controlled via chiller room refrigerant detection system.
The exhaust system shall operate when signaled by the refrigerant detection system.
Heat will be provided to prevent freezing of any piping.

Other building Exhaust System
Provide a separate building exhaust system for bathrooms, kitchenettes, break rooms, trash rooms, janitor closets and housekeeping rooms.

Mail Room Exhaust System
Provide a dedicated exhaust system for the mail sorting room

Ductwork Systems

Ductwork will be constructed in accordance with SMACNA Standards for appropriate pressure class. Ductwork will be sealed to meet SMACNA Seal Class A as a minimum and to limit ductwork leakage not exceeding 1% of the design flow rate for high pressure ductwork and 2% for low pressure ductwork. Systems shall be designed to minimize pressure drop to meet code required fan horsepower limits. The fume hood exhaust system shall not contain any fire dampers or smoke dampers and the system shall be designed and configured so that fire and smoke dampers are not required by code anywhere in the system.

Supply and Return/Exhaust System with Air Terminals

Description	Construction
Air Handling Unit to Exit at Shaft on floors (including risers)	Galvanized Steel +6“ Pressure class
From Shaft to Air Terminal Device	Galvanized Steel +4“ Pressure class
Air Terminal Device to Supply Diffuser	Galvanized Steel +2“ Pressure class
Return/Exhaust Grille to AT	Galvanized Steel (-2)“ Pressure class
Return/Exhaust Air Terminal (AT) Device to fan	Galvanized Steel (-4)“ Pressure class

Laboratory Exhaust

System	Construction
From Equipment, Grille, etc. to Air Terminal Device	(-2)“ Pressure class (galvanized steel for general exhaust runouts: runouts to fume hood and equipment shall be PCD coated. (4)
Air Terminal Device to Shaft	-4“ Pressure class (galvanized steel for general exhaust grille runouts: runouts to fume hoods and equipment shall be PCD coated.) (4)
Exit at Shaft (including risers) to Heat Recovery Device	-6“ Pressure class (PCD coated) (4)
Heat Recovery Device to Fan Inlet Isolation Damper	-6“ Pressure class (PCD coated) (4)
Fan Inlet Damper to Exhaust Fan Inlet	-10” Pressure class (PCD coated) (4)
Exhaust Fan Stack Discharge Velocity (1)	+10” Pressure class 316 stainless steel, all welded construction

(1) Nozzle velocity shall be determined by wind tunnel testing.

Miscellaneous Systems

Elevator Machine Rooms
Elevator machine rooms will be provided with single fan coil unit, return/relief fans for economization as required, associated control dampers and ductwork to maintain required space temperatures depending on the room size and HVAC load.
Fan coil unit to include supply fan driven by electronically commutated motor, filters, and chilled water-cooling coil.

Firing Range System
Firing range will be provided with a packaged supply and exhaust system that will provide heating cooling and required filtration for exhaust air from the space. The building laboratory/office supply system will provide required make-up air and the building combined laboratory exhaust system will exhaust the required airflow to the outside from the packaged system. The packaged unit will be sized to provide a minimum of 75 fpm air velocity moving from the shooting end to the bullet stop end range space. The air will be supplied using laminar supply diffusers or plenum wall. The package HVAC system will be interfaced with the building control system.

Stairwell Heating and Cooling
Each stairwell having external glazing/exposure and access to the exterior for egress will be provided with cabinet unit heaters to provide heating to the space.

Technology Space Cooling
Intermediate Distribution Framework (IDF) and Computer Rooms that require cooling will be provided with self-contained fan-coil units to maintain required space temperature and humidity
Fan coil unit to include supply fan driven by electronically commutated motor, filters, and DX cooling coil and associated condensing units.

Evidence Storage Rooms
Evidence Storage Rooms will be provided with self-contained DX fan-coil units to maintain required space temperature and humidity. Minimum outside air shall be provided by laboratory supply air system. See room data sheets for other evidence storage room criteria
Fan coil unit to include supply fan driven by electronically commutated motor, filters, and DX cooling coil.

Hot Water Heating Terminal Units
Cabinet unit heaters shall be provided in all entry and exit vestibules. Cabinet
unit heaters shall be provided in all stairwells.
Unit heaters will be provided in Mechanical and Electrical Rooms with exterior envelope and Loading Dock Receiving Areas.

BUILDING AUTOMATION SYSTEM

Executive Summary
A complete, direct-digital control (DDC) based Building Automation System (BAS) will be installed to control all mechanical systems throughout the Milwaukee State Crime Laboratory. The control system will have the ability to integrate with mechanical and electrical systems and support multiple functions, such as optimization strategies.

System Description
Mechanical systems will be controlled and monitored through a DDC based Building Automation System (BAS) with distributed processing at the local level. All DDC controllers provided as specified under specification State of Wisconsin master specification Section 23 09 23 shall be by one of the following DDC manufacturers: Distech, Johnson Controls Metasys, or Alerton. Electric actuation will be utilized for all larger control valves and dampers while Low Voltage Electric actuation will be utilized for terminal unit control. Low Voltage Electric actuation will be utilized whenever possible.

The control system will interface via BACnet IP to a new Niagara Supervisor. The control system will be fully accessible from operator interface.

Supervisory controllers shall be Niagara based controllers, such as JACE 8000 or identical private label equivalent, per DFDM master specifications. Supervisory controllers shall be provided with open connectivity to any manufacturer's BACnet programmable or application specific controllers.

The BAS will reside on the facility Enterprise network. All supervisory controllers shall be connected to the same IT Ethernet Switch that is provided as part of the building IT system.

Control sequences, control system components and instrumentation specifications will follow the State of Wisconsin DFDM master specifications (i.e. 23 09 14, 23 09 23, 23 09 93, etc.).

BAS will integrate with the following control systems/ equipment via communication-based interface or dedicated contacts and will provide graphical user interfaces via BAS Web server as necessary.

[Remainder of this page intentionally left blank, Exhibit continues on next page]

Table M29 – BAS Systems	
System	**Description**
Boilers	BAS will provide graphical interface including equipment flow diagram showing all sensing and control devices associated with the system and provide ability to monitor, schedule and override applicable controls.
Cooling System - Chillers	BAS will provide graphical interface including equipment flow diagram showing all sensing and control devices associated with the system and provide ability to monitor, schedule and override applicable controls.
Computer Room Air Conditioning Units (CRAC)	BAS will provide graphical interface including equipment flow diagram showing all sensing and control devices associated with the system and provide ability to monitor, schedule and override applicable controls.
Variable Frequency Drives	BAS will provide additional monitoring and remote notification for alarming.
Packaged HVAC equipment	Packaged equipment will include but not be limited to air handling units, fan coil units, cabinet unit heaters, fume hoods, and numerous other pieces of equipment.
Generator System	BAS will provide additional monitoring and remote notification for alarming.
Fuel Oil Management System	BAS will provide additional monitoring and remote notification for alarming.
Fire Alarm System (FAS) Monitoring	BAS will monitor contact termination points and/or addressable relays for Smoke Control and Equipment Shutdown.
Power Monitoring	BAS will provide additional monitoring for power consumption and remote notification for alarming.
Domestic Equipment: Sumps, ejectors, hot water equipment, pure water equipment, pressure boosters, etc.	BAS will provide additional monitoring as needed and remote notification for alarming of all systems.
Lighting Control	BAS will integrate with the lighting control system components for monitoring of occupancy switches for setback of HVAC systems.
CO2 Sensors	CO2 sensors will be utilized in all densely occupied spaces (conference rooms, auditorium, etc.) and will be used for local demand-controlled ventilation.
O2 Depletion Sensors	O2 sensors will be utilized in all spaces where nitrogen or other asphyxiants are used and will be used for warning and ventilation.
Flammable Sensors	Flammable vapor sensors will be utilized in all spaces where hydrogen or other flammables are used and will be used for warning and ventilation.
Laboratory equipment such as refrigerators/freezers	A standalone Equipment Monitoring System (EMS) will provide additional monitoring and remote notification for alarming as required by DOJ's internal processes. This system shall be connected to the IT network and phone system to provide the necessary access and reporting for appropriate DOJ staff. This system will be separate from the BAS. This will allow lab staff to be in control of the system and ensure the appropriate temps are maintained to meet certification guidelines and reporting directly to the EMS.

Table M29 – BAS Systems	
System	**Description**
Vehicle Space HVAC	Doors to the outside will be monitored. BAS will shut down the cooling for this space when doors are open. Heating will continue to operate with doors open to facilitate bringing in vehicles in cold weather.
Fume Hood Control	BAS will control fume hoods for two-position (active, inactive) operation whenever possible. All control devices in spaces with two-position fume hoods will be by BAS contractor. A separate VAV fume hood control system for the laboratories that have higher air change rates shall be provided where required to reach the minimum air change rate and would result in energy savings that would result in a payback within the life of the equipment. This system shall be integrated with the building automation system through a BACnet/IP communication interface.
Fume Hood/HVAC shutoff pushbuttons	In room where hazardous substances are used, such as fentanyl, pushbuttons will be installed and wired to the BAS to notify of an incident. These buttons could potentially be used to shut down HVAC for the room (TBD).
Emergency response mode pushbutton	A separate pushbutton will be installed (location TBD) and wired to the BAS to index the system to a prescribed emergency response mode.

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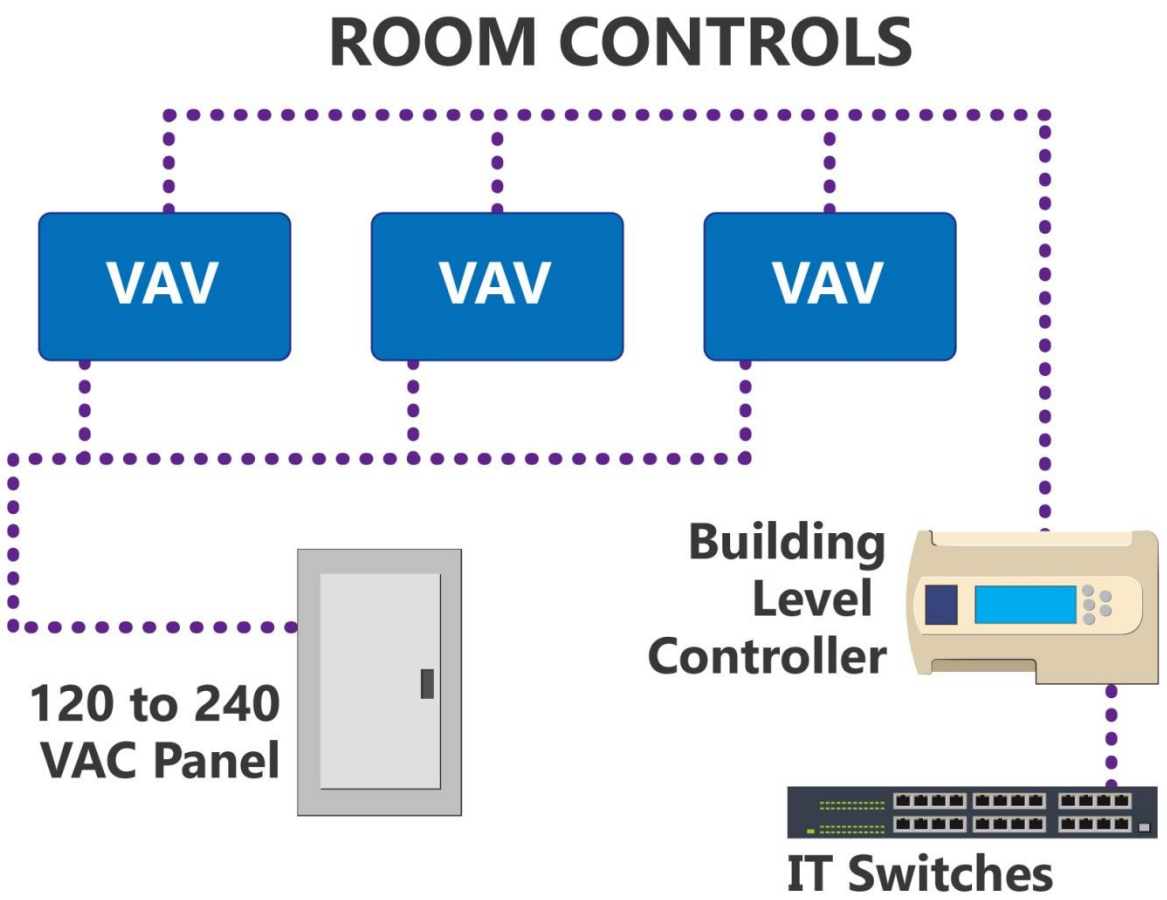
Design Criteria

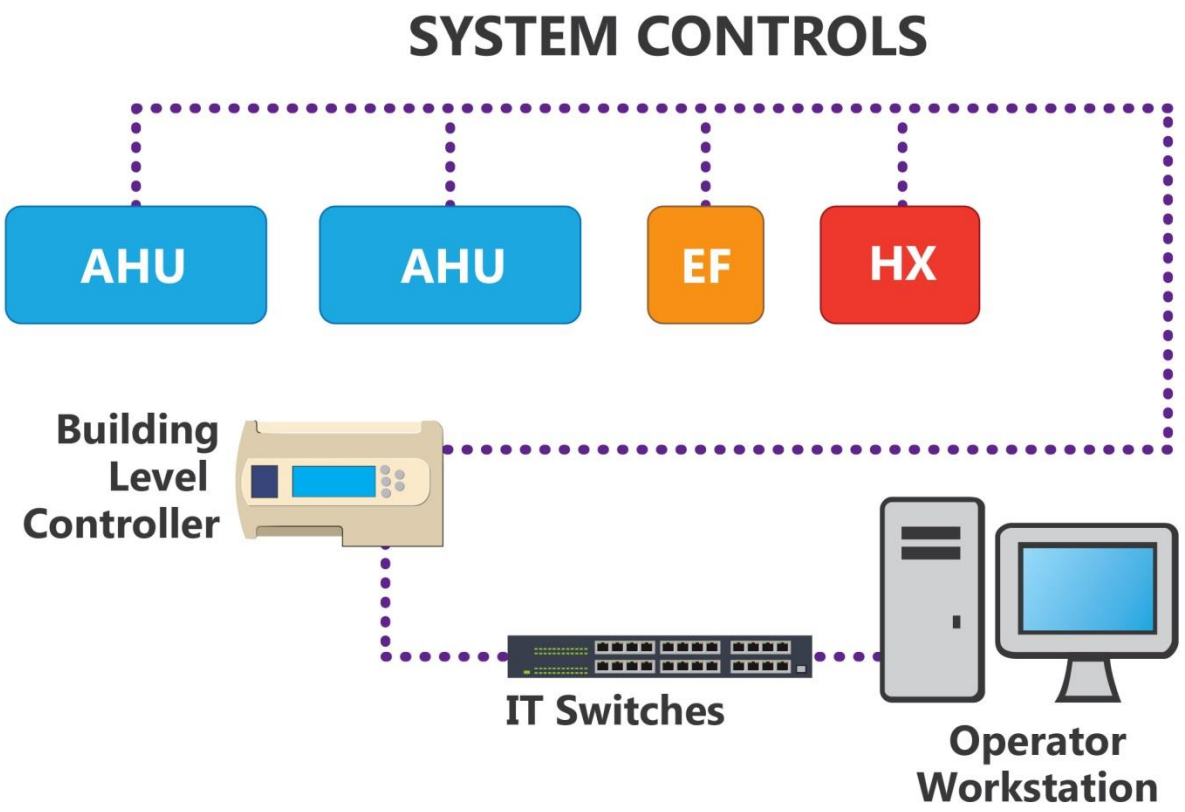
DDC controllers will utilize distributed architecture and will not rely on "front-end" or higher-level controller to perform required control sequence.



Systems with redundant mechanical equipment will have individual controls installed for each piece of equipment to prevent a single controller failure from causing a total system failure.

Individual controllers for airflow and temperature control will be provided for each air terminal device. DDC controllers serving major equipment will have a minimum of two spare points of each type (DI, DO, AI and AO) at each panel. For universal points, the spares will be divided evenly between the analog and digital types of points.

Control panels and DDC controllers serving equipment fed by emergency/standby power shall also be served by emergency/standby power. All BAS and DDC system primary controllers, PCs and communications equipment that monitors life safety and critical points (fire alarm, elevator emergency, etc.) will be supported by the building central uninterruptible power supply (UPS). Control panels and DDC controllers serving heating system and critical exhaust systems will also be served by the building central UPS.



Airflow tracking control using DDC will be utilized instead of space pressure control, to maintain the space pressure (positive, neutral or negative) as required by the programming.

A device to initiate a one-step shutdown of air handling and exhaust systems will be installed at a location determined by the Owner. Control system will be programmed with an emergency response module to switch the system to a prescribed emergency response mode.

Equipment and Material
All control wiring will be installed in dedicated metal conduit except as where allowed to be installed free air as specified in State of Wisconsin maters specification Section 23 09 14.

BAS PCs will be provided at:

- Maintenance Shop Office

Graphics displays for all systems controlled and monitored by the BAS shall be provided and shall consist of pictorial presentations on CRT screen with text description, system schematic, or picture; alarm fields; and database fields for all associated points, including dynamic input values, output values, set points, gains, time schedules, etc. Provide single keystroke access to text file description of control sequence(s) in detail. Floor plan graphics of the entire building shall be provided with terminal unit zones depicted and links to major mechanical equipment.

User interface will be fully accessible from a tablet/hand-held device. Graphics shall be full screen when accessed from any device, including Operator workstations.

DFDM point naming standards shall be utilized to facilitate querying and analyzing both real-time and historical data.

- The main building electrical, gas, and water meters shall be connected to, monitored by, and trended through the BAS. If a connection to any of the main utility meters is not available, an auxiliary meter shall be provided.
- Data will be collected from BAS, utility meters (or auxiliary meters), VFDs, and other systems connected to the network. Trends will be configured for long-term storage and available via standard database platform, such as Microsoft SQL. Trends will be configured for the following data types, at a minimum:
- I/O points
- Software points
  - Alarm limits
  - Setpoints
  - System parameters
- Schedules
- Alarm messages
- Events
- Transactions

B. Plumbing Systems

Storm and Clearwater Drainage

System Description

A storm drainage system will be provided to convey rainwater from flat roofs to site storm sewers.

Secondary roof drainage will be accomplished by using parapet scuppers.

Secondary roof drainage for the penthouse will be accomplished by using a dedicated piped overflow drainage system separate from the primary storm drainage system which will discharge through the building wall onto the second floor roof.

Clearwater waste from air handling units, coolers, and other devices and equipment that discharge clearwater will be conveyed by gravity flow through a separate piping system and will connect to the building storm drain.

Design Criteria

The primary storm drainage system will be sized based on a maximum rainfall rate of 3 in/hr. The secondary storm drainage system will be sized based on the same design criteria as the primary system.

The sizing for all clearwater discharge from equipment system will be based on the maximum flow rate of the equipment.

Distribution

Storm and Clearwater Waste Systems Materials		
System	**Below Ground**	**Above Ground**
Storm and Clearwater Waste and Vent	• Schedule 40 PVC with DWV pattern solvent cement socket fitting joints	• Schedule 40 PVC with DWV pattern solvent cement socket fitting joints
Pressurized Storm and Clearwater Waste and Vent	• 3" and smaller: Schedule 40 with solvent cement joint fittings, pressure rated • Larger than 3": PVC pressure pipe, DR 18, Class 150,	• Schedule 40 with solvent cement joint fittings, pressure rated,

Insulate piping as call for in the DFDM Master Specifications

Waste and Vent Systems

System Description

A sanitary waste and vent system will be provided for all plumbing fixtures and other devices that produce sanitary waste. Plumbing fixtures will be drained by gravity through conventional soil, waste and vent stacks, building drains and building sewers to the street sewer.

Plumbing fixtures in laboratories and laboratory support spaces will be provided with a drainage system separate from the sanitary drainage system. The laboratory waste system will drain by gravity flow to a dilution basin located in the mechanical room. The effluent from the dilution basin will discharge into the sanitary building drain.

All fixtures will have traps and will be vented through the roof. Vent terminals will be located away from air intakes, exhausts, doors, openable windows and parapet walls at distances required by the plumbing code.

In all vehicle areas, waste will be routed through an oil/water separator before discharging to sanitary drain.

Floor drains will be provided for emergency showers.

Design Criteria

The waste and vent piping will be sized in accordance with code requirements.

Equipment and Material

Drainage systems containing oil or flammable liquids will be run through appropriate exterior oil/water interceptor before connecting to the sanitary sewer system.

The dilution basin will be a polypropylene basin with sealed and gasketed cover. The discharge will have a pH monitor with alarm that will report locally and to building automation system.

Floor drains, floor sinks and indirect waste receptors will be provided with trap seal inserts when subject to loss of their trap seals due to evaporation caused by infrequent use.

All piping which collects clearwater condensate from air handing equipment will be insulated to prevent condensation on the piping.

Distribution

Waste System Materials		
System	**Below Ground**	**Above Ground**
Gravity Sanitary Waste and Vent	• Schedule 40 PVC with DWV pattern solvent cement socket fitting joints	• Schedule 40 PVC with DWV pattern solvent cement socket fitting joints
Laboratory Waste and Vent	• Schedule 40 chlorinated polyvinyl chloride pipe (CPVC), ASTM D1784, with solvent cement joints	• Schedule 40 chlorinated polyvinyl chloride pipe (CPVC), ASTM D1784, with solvent cement joints
High Temperature Sanitary Waste and Laboratory Waste	• Schedule 40 chlorinated polyvinyl chloride pipe (CPVC), ASTM D1784, with solvent cement joints	• Schedule 40 chlorinated polyvinyl chloride pipe (CPVC), ASTM D1784, with solvent cement joints
Garage waste and vent	• Hubless cast iron with cast iron couplings and stainless-steel bolts and nuts	• Hubless cast iron pipe with standard weight stainless steel clamp

Waste piping will be pitched according to code to maintain a minimum velocity of 2 fps when flowing half full.

Vents and the venting systems will be designed and installed so that the water seal of a trap will be subject to a maximum pneumatic pressure differential equal to 1" water column. This will be accomplished by sizing and locating the vents in accordance with the venting tables contained in the plumbing code.

Elevator Sump Pumps

System Description

An elevator sump shall be required in the base of each elevator pit. Unless noted otherwise sump pit shall be formed into the elevator hoist-way base. Sump pump discharge will be directly into the building storm drainage system. Refer to Appendix-System Equipment Reliability, Generator Power, and Capacity Matrix for pump redundancy.

Design Criteria

Sump pump will be sized in accordance with code requirements. Provide a pump sufficient to discharge 30 GPM in a hoist-way with one elevator and 50 GPM in a hoist-way with two elevators.

Equipment and Material

Sump pump shall be submersible type. Sump pumps will be connected to the emergency (standby) power system to permit operation during a loss of normal power.

Distribution

Piping shall be the same material and joint type as storm and clearwater drainage system.

Domestic and Non-potable Water

System Description

Domestic water will be provided to all toilet room fixtures, electric water coolers/drinking fountains, sinks, emergency shower/eyewash units, and any other devices that require a domestic water supply.

Hot water at 120°F will be provided to all fixtures and devices that require hot water.

Non-potable water system will provide make-up water to irrigation, mechanical (HVAC) systems such as heating hot water, chilled water, and cooling towers. A reduced pressure backflow preventer will protect the domestic water supply.

There will be no separate centrally piped lab water system – see equipment for protection requirements.

Design Criteria

Each water heater will be sized for 70-75% of the design hot water load at an outlet temperature of 120°F.

Backflow preventers will be sized for 100% of the design flow.

Equipment and Material

A water meter will be provided on the building service entrance. The water meter will be sized for the building's maximum design flow rate.

Domestic water pressure boosters shall be required if necessary, based the building elevation and available water pressure.

Domestic hot water will be produced by two gas-fired, storage-type water heaters**.**

The hot water system temperature will be maintained by recirculating the hot water through a continuous loop with an in-line three speed circulating pump.

Water softeners are not required for the domestic water system if the water hardness is 7 grains or below but will be provided for the cooling tower make-up system. If hardness is above 7 grains, then softening is required for all water

Water hammer arrestors will be provided at all quick closing solenoid valves and at other potential water hammer sources.

Tepid water to emergency fixtures will be provided by a point of use thermostatic mixing valve with cold water bypass device at each fixture per the ANSI Z358.1 definition of tepid water.

Laboratory fixtures will be fed domestic hot and cold water with an air gap on each at each faucet unless it can be connected to a hose. Those that can be connected to a hose will have an inline vacuum breaker.

Distribution

Water System Materials		
Size	**Below Ground**	**Above Ground**
2-1/2" and smaller: Copper	• Copper water tube, Type K, soldered joints and wrought copper fittings	• Type L copper tube with soldered joints and wrought copper or cast bronze fittings
Underground (3" and larger): Ductile Iron	• Ductile iron, Class 52, AWWA C151, cement mortar lined with restrained mechanical joints and ductile iron fittings	• Not applicable
Copper (3" and larger)	• Not applicable	• Type L copper tube with grooved joints and wrought copper or copper alloy fittings with rolled groove couplings
Stainless Steel	• Not applicable	• 304L, schedule 10, stainless steel with roll grooved joints and grooved fittings with grooved couplings
Crosslinked Polyethylene (PEX) (2" and smaller)	• Not applicable	• PEX-a, Engel-Method Crosslinked Polyethylene, ASTM F876/877 and cold expansion fittings

Piping 2-1/2" and larger and located in mechanical equipment rooms may be rolled groove mechanical joints.

The hot water system will be insulated in accordance with Code. The cold-water system will be insulated to prevent condensation from forming. Isolation valves will be provided at all riser connections, branch piping runouts to fixture groups, and at devices requiring maintenance.

Plumbing Fixtures			
Fixture	**Type**	**Operation**	**Flow Rate**
Water Closets	Wall hung, vitreous china, with elongated bowls	Flush valves will be diaphragm type, manual	1.6-gallon flush
Urinals	Wall hung, vitreous china,	Flush valves will be diaphragm type, sensor operated, battery powered	0.5**-gallon** flush
Lavatories [Public]	Solid surface integral to countertop. Refer to architectural floor plans for areas with wall hung units and counter mounted units.	Faucets will be hot and cold mixing type, sensor operated, battery powered.	0.5 GPM flow control

Plumbing Fixtures			
Fixture	**Type**	**Operation**	**Flow Rate**
Lavatories (Laboratories]	Solid surface integral to countertop. Refer to architectural floor plans for areas with wall hung units and counter mounted units.	Faucets will be hot and cold mixing type, sensor operated, battery powered	0.5 GPM flow control
Lavatories	Wall hung. Refer to architectural floor plans for areas with wall hung units and counter mounted units.	Faucets will be hot and cold mixing type, sensor operated, battery powered.	0.5 GPM flow control
Sinks	Countertop mounted stainless steel	Faucets will be hot and cold mixing type.	2.2 GPM flow control
Laboratory Sinks, Cup Sinks	Integral with casework. Faucets will be furnished with the casework and installed by the Division 22 contractor		
Showers	Built-up ceramic tile walls and floors with floors drains	Pressure balanced shower valves. Barrier-free showers will also have with hand spray with hose and adjustable wall bar	2.0 GPM flow control
Electric Water Coolers	Wall mounted, self-contained, dual level with bottle filler	Manual push button operated, with stainless steel cabinets and disposable activated carbon water filters	
Janitor Sinks	Floor mounted, precast terrazzo, with stainless steel splash wall panels	Faucets will be hot and cold mixing type with hose connections and [elevated] [integral spout] vacuum breaker	
Exterior Hose Bibbs	Recessed mounted freeze resistant with vacuum breaker and loose key operator	Manual	-

Plumbing Fixtures			
Fixture	**Type**	**Operation**	**Flow Rate**
Mechanical Room Hose Bibbs	Surface mounted with in-line vacuum breakers	Manual	-
Emergency Eyewashes	Counter mounted; fixtures will comply with ANSI Z358.1.	Manual, Stay open valve.	
Emergency Showers and eyewashes	Unfinished spaces will be free standing combination shower eyewash units with floor mounting flanges. The fixtures will comply with ANSI Z358.1. Finished spaces will be emergency showers and eyewashes with recessed stainless-steel wall boxes with pulldown eyewash and pulldown shower operator. The showerhead will be wall mounted. Exposed piping will be brushed stainless steel. The fixtures will comply with ANSI Z358.1. Fixtures in laboratory areas will be furnished by the casework contractor and installed by the Division 22 contractor.	Manual, Stay open valve.	-

High Purity Water

System Description

A central system will be provided to produce and distribute water meeting the quality requirements of ASTM Type II and Type A from the facilities potable water system.

Water Quality								
Design Standard	**Resistivity**	**Silica**	**Sodium**	**pH**	**Chlorides**	**TOC**	**Bacteria**	**Endotoxin**
ASTM Type II	≥1 MΩ-cm @25°C	≤3µg/L	≤5µg/L	No Limit	≤5µg/L	≤50µg/L	1cfu/ 100ml	<,0.03EU/ ml

This system will not be validated.

Pure water will be continuously circulated in closed loops to users throughout the laboratory.

Point of use polishing units will be provided for use points that require a higher level of quality water.

The system will be automatically monitored and controlled by a dedicated PLC based control system that will send a discrete alarm signal to the Building Automation System in the event of deviations.

Design Criteria

The system design will be based on performing sanitation using peracetic acid solutions.

The capacity of the production equipment and the storage tank will be based on the programmed use points. Estimated system size is approximately 0.2 GPM with a 50-gallon storage tank. These values will need to be validated based on final programming, but it the best estimate at this time.

Equipment and Material

The production equipment is anticipated to consist of a prefilter, multimedia filter, carbon filter, water softener, double pass RO unit, two-bed deionization exchange cylinders, mixed bed deionization exchange cylinders, a one micron post filter, a 185 nm ultraviolet light, and a 0.2 micron final filter.

The distribution system equipment will include centrifugal pump(s) to provide circulation and 254 nm UV lights followed by 0.2-micron filters to control bacterial growth.

Materials in contact with pure water will be:

- Equipment: 316L stainless steel polished to 25 Ra
- Storage tank: vinyl ester, steam-cured fiberglass
- Piping: high purity Polypropylene or Low Extractable PVC
- Elastomers: EPDM

Distribution

The distribution system will be comprised of 1 loop through which water will be continuously circulated. Each distribution loop will employ a series loop layout. The loops will drop to each use point location and a zero static diaphragm valve will be provided.

High purity water system distribution system shall be one of the following:

- Polypropylene piping will be used for the distribution system. Joints will be made by IR butt fusion. Sanitary clamps or sanitary unions will be used where breakable connections are required. Piping will be continuously supported.
- Low Extractable PVC piping will be used for the distribution system. Joints will be made by solvent socket welding. Sanitary unions will be used where breakable connections are required. Piping will be supported per manufacturer's requirements

All tee connections shall be installed to minimize the dead leg. The distance from the sealing point on the branch to the inside of the main line wall shall be less than six (6) branch line diameters.

Piping will be installed so that it is completely free draining. A minimum slope of 1/8 inch per foot will be maintained.

Sink use points shall be as shown on the lab plans.

The quality of the water in the distribution system will be monitored by the PLC that will send a discrete alarm signal to the Building Management System in the event of deviations.

Nitrogen-Laboratory System

System Description

There are LN2 and N2(g) systems in use in this facility.

The nitrogen gas system will be provided to serve outlets as required by the Owner.

The liquid nitrogen system will be an exterior tank with manual carboys within the loading dock area provided by the owner.

Design Criteria

The nitrogen system will be designed to provide 80 psig nitrogen at the most remote lab outlet. The system will be sized based upon a load of 0.5 scfm per outlet and the total number of connected outlets connected to the system. Any point loads for specific equipment will be added to the outlet load after any diversity factors are applied. The diversity factors indicated below will be used for determining the load for outlets:

Table 2

Nitrogen System Diversity Factors

Number of Outlets	Diversity Factor	Minimum Flow (scfm)	Empirical Formula for Flowrate (scfm)
1-5	1.00	0	No. of Outlets*1
6-12	0.80	5	5+(No. of Outlets-5)*5/7
13-33	0.60	10	10+(No. of Outlets-12)*10/21
34-80	0.50	20	20+(No. of Outlets-33)*20/47
81-150	0.40	40	40+(No. of Outlets-80)*20/70
151-315	0.35	60	60+(No. of Outlets-150)*50/165

The nitrogen piping will be sized to limit the pressure drop across the system to 5 psi.

Equipment and Material

Nitrogen service will be supplied by a local nitrogen generator served with laboratory compressed air with backup cylinder manifold system.

For nitrogen source redundancy, Refer to Appendix-System Equipment Reliability, Generator Power, and Capacity Matrix.

Distribution

Nitrogen piping will be ASTM B-280 Type L, oxygen cleaned, with brazed joints. Laboratory outlets will be needle-valve type outlets.

Special Gases-Laboratory System

System Description

Special gases will be provided to all points of use as required by the Owner, including all DOJ equipment including Gas Chromatograph/Mass Spectrometer, Gas Chromatograph, and Headspace Gas. Special gases shall include but not be limited to: helium and hydrogen.

Design Criteria

The special gas system will be designed to provide 80 psig gas at the most remote lab outlet. The system will be sized based upon a load of 0.5 scfm per outlet and the total number of connected outlets connected to the system. Any point loads for specific equipment will be added to the outlet load after any diversity factors are applied. The diversity factors indicated below will be used for determining the load for outlets:

Table 2

Special Gases System Diversity Factors

Number of Outlets	Diversity Factor	Minimum Flow (scfm)	Empirical Formula for Flowrate (scfm)
1-5	1.00	0	No. of Outlets*1
6-12	0.80	5	5+(No. of Outlets-5)*5/7
13-33	0.60	10	10+(No. of Outlets-12)*10/21
34-80	0.50	20	20+(No. of Outlets-33)*20/47
81-150	0.40	40	40+(No. of Outlets-80)*20/70
151-315	0.35	60	60+(No. of Outlets-150)*50/165

The special gases piping will be sized to limit the pressure drop across the system to 5 psi.

Equipment and Material

Hydrogen service will be supplied by a local hydrogen generator served with purified water with backup cylinder manifold system.

Special gases service will be supplied by a duplex cylinder manifold system. The number of cylinders on each system will be based upon building use criteria but will not be less than two cylinders per bank. The manifold system will be an automatic switchover type set to distribute special gases at 80 psig.

For special gases source redundancy, Refer to Appendix-System Equipment Reliability, Generator Power, and Capacity Matrix.

Distribution

Special gases piping will be:

- ASTM B-280 Type L, oxygen cleaned, tube with brazed joints. Laboratory outlets will be [quarter-turn] [needle-valve] type outlets.
- Type 316, ASTM A269, stainless steel tube with compression fittings and joints.

Laboratory Compressed Air

System Description

Laboratory grade compressed air will be provided to all laboratory areas at a pressure of 100 psig and a dewpoint of -40°F. Compressed air will be provided as required by the Owner.

Design Criteria

Compressed air piping system will be sized based on 5 scfm per outlet plus any flow required for individual pieces of equipment. Diversity factors will be applied to laboratory outlets as indicated below:

Table 2

Compressed Air System Diversity Factors

Number of Outlets	Diversity Factor	Minimum Flow (scfm)	Empirical Formula for Flowrate (scfm)
1-5	1.00	0	No. of Outlets*1
6-12	0.80	5	5+(No. of Outlets-5)*5/7
13-33	0.60	10	10+(No. of Outlets-12)*10/21
34-80	0.50	20	20+(No. of Outlets-33)*20/47
81-150	0.40	40	40+(No. of Outlets-80)*20/70
151-315	0.35	60	60+(No. of Outlets-150)*50/165

The compressors will be controlled by pressure switches in receiver set to operate between 100 and 115 psig. Each compressor will be sized for 50% of the maximum total demand. The compressors will be controlled on lead/lag/alternate basis.

Equipment and Material

Laboratory grade compressed air will be produced by oil-free scroll air compressors. Compressors will be base mounted. Air will be treated with coalescing filters, charcoal filters and particulate filters and dried with heatless desiccant air dryers. Compressed air will be stored in an ASME rated vertical receiver with outlet pressure regulator.

For compressed air equipment redundancy, Refer to Appendix-System Equipment Reliability, Generator Power, and Capacity Matrix.

Distribution

Compressed air piping system will be ASTM B-280 Type L, oxygen cleaned copper piping with brazed joints.

END OF PLUMBING

C. FIRE SUPRESSION SYSTEMS

EXECUTIVE SUMMARY

The new Milwaukee State Crime Laboratory will be protected throughout by sprinkler systems that meet the requirements of the applicable NFPA 13 standard. Due to the electronic equipment and contents present in each area, the laboratory areas and evidence and server rooms as identified in the tenant specifications in Appendix 3 will all be protected by a single interlock pre-action sprinkler system that utilizes an air sampling-type smoke detection system (i.e. VESDA) for activation. A clean agent fire suppression system is required in the DNA Amplification, DNA Screening and New Technology Validation rooms (#1303-1 and -2, #1305-1 through -4, and #1315).

SYSTEM DESCRIPTIONS

Fire Service

System Description

An underground fire line will supply the sprinkler systems in this building.

Design Criteria

The design of the underground fire lines shall comply with NFPA 24.

Current water supply flow test data will be obtained from the City Water Department to determine the capacity of the water mains.

Depending on the height of the building and available water pressure it is not expected that a fire pump will be required. If required provide fire pump in compliance with applicable codes and standards.

Equipment and Material

Piping for all underground lines will be cement lined ductile iron or, where approved by the Owner and local Authority Having Jurisdiction, Polyvinyl Chloride (PVC).

Wet Pipe Sprinkler System

System Description

The building will be protected throughout with hydraulically calculated sprinkler systems, which except for special protection needs, will be wet pipe systems. All areas of the building will be protected per the requirements of the NFPA 13 standard, including loading docks, stair towers, exterior canopies, and mechanical rooms. Electrical rooms (i.e. switchgear rooms, transformer rooms, generator rooms, electrical closets, and similar rooms) will be protected unless the requirements to omit sprinkler protection from these rooms within the NFPA 13 are met.

Design Criteria

The sprinkler system for the building will be designed and installed in accordance with NFPA 13.

All systems will be hydraulically calculated with a computer calculation program using the Hazen-Williams method.

The following sprinkler design densities shall apply:

Sprinkler Design Densities			
Hazard-Areas Designated as	**Density-Minimum Sprinkler Flow**	**Remote Area**	**Hose Stream Allowance**
Light Hazard	0.10 GPM per sq. ft.	1,500 sq. ft.	100 GPM
Ordinary Hazard Group 1	0.15 GPM per sq. ft.	1,500 sq. ft.	250 GPM
Ordinary Hazard Group 2, where stockpiles of combustibles do not exceed 12 ft.	0.20 GPM per sq. ft.	1,500 sq. ft.	250 GPM
Extra Hazard Group 1, where the quantity and combustibility of contents is very high and the probability of rapidly developing fires with high rates of heat release are expected	0.30 GPM per sq. ft.	2,500 sq. ft.	500 GPM

The system demand will be based upon the most remote 1500 sq. ft. for ceilings that are pitched less than or equal to a 2 in 12 slope in Light and Ordinary Hazard areas, and 2500 sq. ft. for Extra Hazard areas. Ceilings exceeding this pitch will require that the remote area size to be increased by 30%.

The pipe sizing for the systems will be as required to satisfy the hydraulic demand.

Equipment and Material

Piping 2" and smaller in size will be Schedule 40 black steel with threaded joints.

Piping larger than 2" will be Schedule 10 black steel with welded fittings or roll groove couplings or Schedule 40 black steel with welded fittings, threaded joints, or roll groove couplings.

All sprinklers in Light Hazard areas will be quick-response type.

The type of sprinkler installed in a particular area will be selected by the Engineer and the Project Architect. Generally, concealed sprinklers will be installed in areas having suspended ceilings. Pendent or upright sprinklers will be installed in areas without ceilings. Sidewall sprinklers will be provided only when other types cannot be utilized.

Areas subject to temperatures below 40°F will be protected by dry sprinklers when possible. If dry sprinklers cannot be provided, then a dry pipe sprinkler system will be installed. Glycol antifreeze system will not be an option to dry-type sprinkler heads or a dry pipe sprinkler system.

Fire Department Connection (FDC) - The fire department connection will consist of 2½" inlets with drop clappers, snoots, caps and chains.

A check valve will prevent flow from the fire protection system to the FDC.

An automatic ball drip valve will be installed between the check valve and the FDC to allow any minor leakage past the check valve to drain out of the system.

The FDC location will be coordinated with the local Fire Department and Project Architect.

Typically, the design will require a fire hydrant within 100 feet of the FDC.

The FDC will be installed on the exterior wall of the building.

A horn/strobe is to be provided directly above the FDC to assist the local Fire Department in locating the connection.

Distribution

The sprinkler system will be provided throughout the building in accordance with NFPA 13 and, when required by the Owner, with insurance carrier recommendations.

Dry Pipe Sprinkler System

System Description

Areas of the building subject to temperatures below 40°F will be protected by a dry pipe sprinkler system.

Design Criteria

The dry pipe sprinkler system will be designed and installed in accordance with NFPA 13.

All systems will be hydraulically calculated with a computer calculation program using the Hazen-Williams method.

The following sprinkler design densities shall apply:

Sprinkler Design Densities			
Hazard-Areas Designated as	**Density-Minimum Sprinkler Flow**	**Remote Area**	**Hose Stream Allowance**
Light Hazard	0.10 GPM per sq. ft.	1950 sq. ft.	100 GPM
Ordinary Hazard Group 1	0.15 GPM per sq. ft.	1950 sq. ft.	250 GPM
Ordinary Hazard Group 2, where stockpiles of combustibles do not exceed 12 ft.	0.20 GPM per sq. ft.	1950 sq. ft.	250 GPM

The system demand will be based upon the most remote 1950 sq. ft. for ceilings that are pitched less than or equal to a 2 in 12 slope. Ceilings exceeding this pitch will require that the remote area size is increased by 30%.

The pipe sizing for the systems will be as required to satisfy the hydraulic demand.

Equipment and Material

Piping 2" and smaller in size will be Schedule 40 black steel with threaded joints. Piping for these systems will only be galvanized where it is exposed to the exterior or corrosive environments.

Piping larger than 2" will be Schedule 40 black steel with welded fittings, threaded joints, or cut groove couplings. Piping for these systems will only be galvanized where it is exposed to the exterior or corrosive environments.

All sprinklers in Light Hazard areas will be quick-response type.

Depending upon the actual installation method, sprinklers on dry pipe systems will be either: upright type; dry pendent type; or pendent and sidewall type sprinklers installed on return bends, where the sprinklers, return bend, and branch line piping are in an area maintained at or above 40°F.

A UL Listed and FM Approved dry pipe valve with trim will be provided.

A UL Listed and FM Approved nitrogen generation system will be provided to supply the compressed gas used within the dry pipe sprinkler system piping. The nitrogen generation system will draw compressed air from the facility's central compressed air system.

Distribution

The sprinkler system will be provided throughout the building in accordance with NFPA 13.

Pre-action Sprinkler System

System Description

A pre-action sprinkler system will be installed to protect the laboratory areas and server and evidence storage rooms as identified in the tenant specifications in Appendix 3.

Design Criteria

The pre-action sprinkler system will be designed and installed in accordance with NFPA 13. The pre-action system will be a single interlock system.

The pre-action system valve will be actuated by a signal from the fire alarm system. The devices to be provided for actuation are air-sampling type smoke detectors (i.e. VESDA).

All systems will be hydraulically calculated with a computer calculation program using the Hazen-Williams Method.

The following sprinkler design densities shall apply:

Sprinkler Design Densities			
Hazard-Areas Designated as	**Density-Minimum Sprinkler Flow**	**Remote Area**	**Hose Stream Allowance**
Light Hazard	0.10 GPM per sq. ft.	1500 sq. ft.	100 GPM
Ordinary Hazard Group 1	0.15 GPM per sq. ft.	1500 sq. ft.	250 GPM
Ordinary Hazard Group 2, and where stockpiles of combustibles do not exceed 12 ft.	0.20 GPM per sq. ft.	1500 sq. ft.	250 GPM

The system demand will be based upon the most remote 1500 sq. ft. for ceilings that are pitched less than or equal to a 2 in 12 slope. Ceilings exceeding this pitch will require that the 1950 sq. ft. remote area size is increased by 30%.

The pipe sizing for the systems will be as required to satisfy the hydraulic demand.

Equipment and Material

Piping 2" and smaller in size will be Schedule 40 black steel with threaded joints. Piping for these systems will only be galvanized where it is exposed to the exterior or corrosive environments.

Piping larger than 2" will be Schedule 40 black steel with welded fittings, threaded joints, or cut groove couplings. Piping for these systems will only be galvanized where it is exposed to the exterior or corrosive environments.

A UL listed and FM Approved preaction valve with trim will be provided.

A UL Listed and FM Approved nitrogen generation system will be provided to supply the supervisory compressed gas used to monitor the integrity of the single interlock preaction sprinkler system piping. The nitrogen generation system will draw compressed air from the facility's central compressed air system.

All sprinklers in Light Hazard areas will be quick-response type.

Depending upon the actual installation method, sprinklers on preaction systems will be either: upright type; dry pendent type; or pendent and sidewall type sprinklers installed on return bends, where the sprinklers, return bend, and branch line piping are in an area maintained at or above 40°F.

Distribution

The sprinkler system will be provided throughout the protected area in accordance with NFPA 13.

D. ELECTRICAL SYSTEMS

EXECUTIVE SUMMARY

Electrical systems for the Milwaukee State Crime Laboratory include normal, UPS, emergency, and emergency standby power, building lighting, lightning protection system, and fire alarm system. RFP requirements, including DOA/DFDM master specifications and design guidelines shall be followed to augment electrical system design requirement.

BASE DESIGN CRITERIA

Design Voltages

Type	Voltage
Building Service	480Y/277V, 3 phase, 4 wire + ground
Motors; ½ HP and larger	480V, 3 phase, 3 wire
Motors; less than ½ HP	120 or 208 Volts, 1 phase, 2 wire + ground
Lighting	277 Volts, 1 phase, 2 wire + ground

Type	Voltage
Specialty Lighting	120 Volts, 1 phase, 2 wire + ground
Specific Equipment	480 Volts, 3 phase, 3 wire + ground
Lab Support and Specialty Equipment	208Y/120V, 3 phase, 4 wire
Receptacles	120V, 1 phase, 2 wire + ground

Equipment Sizing Criteria

Branch Circuit Sizing Criteria

Type	Load
Lighting	Actual Installed VA
Receptacles	180 VA per outlet (duplex or single)
Multiple Outlet Assemblies	180 VA per 0.6 m(2')
Special Outlets	Actual Installed VA of Equipment Served
Motors	125% of Motor VA
Special Equipment	Actual Installed VA

Diversity Factor

Diversity factors will be used per the Wisconsin Electrical Code SPS 316 in establishing power service, feeder and equipment capacities. The diversity factor represents the ratio of the sum of the individual non-coincident maximum demands of various subdivisions of the system to the maximum demand of the complete system and may be established using historical data from similar buildings in conjunction with industry standards.

Long Continuous Load/Demand Factors Criteria

Type	LCL Factor
Lighting (Continuous Loads)	125% of installed VA
General Receptacles	100% of first 10 kVA installed plus 50% of remainder
Motors	125% of VA of largest motor plus 100% of VA of all other motors
Fixed Equipment	100% of total installed VA

SYSTEMS DESCRIPTIONS

Electrical Service

System Description

The facility shall be fed from a single feeder from the serving utility. Size the electrical service to accommodate the new facility plus 25,000 square footage expansion in square footage. The main switchboard and service conduit and conductor ampacities shall be sized for the future load. The main shall also have breaker space for future distribution breakers.

The utility shall provide a single 480V feeder to the service entrance disconnect and utility meter switchboard. The contractor shall distribute conduit and cable from the metering compartment to the main distribution switchboard located in the main electrical room.

Design Criteria

The primary system service capacity shall be designed to serve the calculated demand load of the facility with appropriate diversity factor taken plus an additional 20% for anticipated future loads.

Surge protection shall be provided at the main switchboard.

Emergency/Standby Power System

System Description

Emergency power source for the facility will consist of an Emergency Power Supply (EPS) coupled to an Emergency Power Supply System (EPSS). The EPS shall include a single diesel operated engine generator set.

The emergency power system shall be a Level 2 system per NFPA 110.

The 480Y/277V, Emergency/Standby generator shall be diesel engine driven. A subbase tank installed below the generator shall have adequate capacity to operate the generator at full load for at least 12 hours.

The emergency/standby power generator shall have a permanent load bank of at least 50% full load for testing purposes. The load bank shall also have automatic controls for connecting the load bank to the generator under emergency conditions if the generator is loaded less than 30%.

The emergency/standby power shall be distributed to multiple automatic transfer switches segregated by system. Segregated systems are as described below:

System	Associated Loads
Emergency Systems NEC Article 700	Egress Lighting
	Exit Signs
	Fire Alarm Detection and Annunciation Systems
	Elevator Cab Lighting
	Fire Pump / Jockey Pump
	Generator Set Accessories
Legally Required Standby Systems NEC Article 701	One Elevator per Elevator Bank
	Public Safety Communication System
	Ventilation systems where essential to maintain life, fire detection and alarm systems
	Building automation systems associated with control of required ventilation systems

System	Associated Loads
	Sewage ejectors
	Sump pumps
Optional Standby Systems NEC Article 702	Access Control System
	Telecommunication System
	Building Automation System (BAS) and Accessories
	Select Mechanical Equipment
	Compressed air systems.
	Select Chillers and Chilled Water Pumps
	Uninterruptable Power Systems
	Select laboratory and office equipment
	Water Booster Pumps

A central uninterruptable power supply (UPS) shall be provided for sensitive laboratory equipment, Telephone Equipment Rooms, MDF, Server Room, security system, and Building Automation System within the building and gate operators outside the building. The uninterruptable power shall be derived from a standalone UPS which shall include 20% spare capacity for anticipated future loads. Ride through power shall include traditional valve regulated lead acid (VRLA) battery string providing a minimum of 15 minutes of backup. The UPS shall be provided with 480V input power and output shall be 480Y/277V. The UPS shall include a maintenance bypass switch. The UPS shall be located in a dedicated electrical room on ground floor. Anticipated laboratory equipment on UPS includes: GC mass spectrometers, gas chromatographs, LC mass spectrometers, scanning electron microscope, Tecan robots, PCR equipment, thermomixers, and Qiagen equipment.

Design Criteria

The capacity of the generator shall be sufficient to serve the facility emergency and standby loads with approximately 20 percent spare capacity.

Electrical Distribution

System Description

Normal Power Distribution

The normal distribution system shall include all electrical distribution equipment from the serving utility service point to the branch distribution outlet device, not including those systems and devices as described in the following subsections.

Secondary service shall be distributed to the switchboard unit via feeder conduit. The raceway shall originate at the transformer and route into the main electrical room, where it shall feed directly into the top or bottom of the main circuit breaker section depending on actual room location and layout.

Distribution to the distribution panelboards shall consist of conduit and wire. Each distribution panelboard shall be fed directly from the service entrance switchboard; feed-through distribution panelboards shall not be used. This approach allows electrical isolation of each distribution panelboard without affecting loads served from other loads.

Power distribution at 480Y/277V shall be accomplished with conduit feeders for lighting and conduit feeders for power. The lighting feeders shall deliver power to normal power lighting panelboards. The power feeders shall deliver power to 480V:208Y/120V distribution transformers. Typical: the feeder(s) shall deliver power to normal power lighting panelboard(s) and one or more 480V:208Y/120V distribution transformers.

Each 208Y/120V secondary distribution transformer shall deliver power to a Distribution Panel depending on transformer size. The Distribution Panel shall deliver power to the branch circuit panelboard(s).

Emergency/Standby Power Distribution

As required by Code, the feeders and branch circuit wiring to Article 700 emergency loads (lighting, fire alarm, telecommunications, etc.) shall be in dedicated raceway. Individual feeders shall originate at the Article 700 emergency 480Y/277V distribution panel located in the main emergency electrical room and shall distribute through the building to serve the emergency lighting panels. The Article 700 emergency 208Y/120V branch circuit panelboards shall be served from the Article 700 emergency 480Y/277V distribution panel via a distribution transformer and 208Y/120V distribution panel.

Individual Article 701 legally required equipment feeders shall originate at the Article 701 legally required 480Y/277V distribution panel located in the main emergency electrical room.

Individual Article 702 standby equipment feeders shall originate at the standby equipment 480Y/277V switchboard in the main emergency electrical room and shall distribute through the building to serve 480Y/277V distribution panels and the standby equipment distribution transformers. The transformers shall serve 208Y/120V distribution panels which shall in turn serve the individual standby equipment branch circuit panelboards.

Individual standby motor feeders shall originate at the standby motor switchboard located in the main emergency electrical room and shall distribute through the building to serve standby motor distribution panels located in mechanical rooms.

Individual standby UPS feeders shall originate at the standby UPS distribution panel and shall distribute through the building to serve Distribution Panelboards and 480V:208Y/120V distribution transformers as needed for equipment.

Design Criteria

Building service and distribution equipment sizes shall be based on estimated demand plus known or anticipated future loads.

Power distribution equipment shall be sized to support 25% spare capacity (amperes) to accommodate functional changes over the life of the building.

Power distribution equipment shall be sized to include 25% spare circuit breakers plus spaces for future circuit breakers

Power factor correction shall be considered in the design of the power distribution system to bring the calculated power factor to 90% or better.

Equipment and Components

Equipment	Description of Components
Switchboards	UL 891 construction Front access NEMA 1 enclosure Copper Bus Main Circuit Breaker Group mounted bolt-on feeder circuit breakers Electronic trip circuit breakers with field-adjustable and field-changeable trip units shall be used for all circuit breakers 400 amps and greater and for smaller sizes if special circumstances exist. Circuit breakers 800 amps and greater shall be UL listed for applications at 100% of their continuous ampere rating in their intended enclosure
Distribution Panelboards	UL 891 listed Front access NEMA 1 enclosure 800A and smaller shall be I-Line style Copper Bus Main Circuit Breaker Fixed-mount, Group-mount circuit breakers Electronic trip circuit breakers with field-adjustable and field-changeable trip units shall be used for all circuit breakers 400 amps and greater and for smaller sizes if special circumstances exist.
Branch Panelboards	UL 67 listed 42 Pole, NEMA 1 enclosure, recessed and/or surface mounted Copper Bus Main Circuit Breaker or Main Lug Only Molded case with non-adjustable trip units to be used for all circuit breakers 400 amps and smaller unless special circumstances exist. All circuit breakers shall be bolt-on style Panelboard covers shall be hinged trim with door-in-door construction.
Distribution Transformers	480 Delta to 208Y/120 VAC, Wye, three-phase, four-wire; 3-coil, 2-winding type; 150°C rise above 40°C ambient Copper or Aluminum Winding K1 rated unless special circumstances exist. Neutral conductors for K-4 and higher units to be increased in size from the transformer to the first distribution panel and shall be able to support 150% of the normal phase current.

Equipment	Description of Components
	Transformers shall incorporate vibration isolation pads in their construction located between the core/coil assembly and the transformer case
Automatic Transfer Switches	Four pole Copper Bus 65kAIC rating Overlapping- max 100 ms Neutral Open Transition Transfer Controls: Solid State microprocessor Closed Transition with Shunt Trip: for optional standby loads Isolation Bypass: yes 3 cycle for use with molded case breakers short circuit rating

Grounding System

System Description

A complete low-impedance grounding electrode system shall be provided for this facility. The grounding electrode system shall include the main water service line, structural steel, Ufer ground, and ground ring around the perimeter of the building. The equipment grounding system shall extend from the building service entrance equipment to the branch circuit. All grounding system connections shall be made using exothermic welds or irreversible compression connections.

Bonding jumpers shall be provided as required across pipe connections to water meters, dielectric couplings in a metallic cold-water system, and across expansion/deflection couplings in conduit and piping systems.

All feeders and branch circuits shall be provided with an equipment ground conductor. Under no circumstances shall the raceway system be used as an equipment grounding conductor.

Design Criteria

The grounding electrode system shall be designed in accordance with NEC article 250.

System resistance to ground shall be 3.0 ohms or less.

All conductors shall be installed in conduit unless installed unless noted otherwise.

Equipment and Components

The reference ground for the equipment grounding system shall be established from a structural ground grid as follows:

A No. 4/0 AWG bare copper ground wire shall be installed at 30" below grade around the entire perimeter of the building. 19 mm(3/4”) minimum x 3 m(10 ft) minimum driven copper ground rods (test wells) shall be installed and connected to this ground loop at not-greater-than 60 m(200’) intervals with a No. 4/0 AWG bare copper conductor. Steel columns in exterior walls shall also be connected to this ground loop with 4/0 AWG bare copper at intervals not to exceed 20 m (60’). Interior steel columns shall be connected to the

exterior ground loop on each side of the building at intervals not to exceed 60 m (200') with a No. 4/0 AWG bare copper conductor.

A "Ufer" ground shall be provided in the footing of the building consisting of 20' of No. 4 AWG wire located 75 mm (3") from the bottom of the footing.

Wall-mounted copper ground bus shall be located in the main electrical room, floor electrical rooms, and voice/data rooms. The main electrical room ground bus shall be connected to exterior ground loop and "Ufer" ground.

Distribution

A separate, insulated No. 4/0 AWG ground wire shall be provided from the main electrical room ground bus to each electrical room's ground bus, and underground incoming water service line ahead of meter.

The main service entrance neutral shall be bonded to the system ground bar within the switchboard by a removable bus bar link.

A code-sized, unbroken bond leader shall connect the electrical room ground bar to the XO terminal of the local transformers.

A No. 3/0 AWG, green insulated copper telecommunications bonding conductor shall be extended from the Telecommunications Main Grounding Busbar (TMGB) to Telecommunications Grounding Busbar (TGB) at each Telecommunication Room.

A separate equipment ground conductor shall be provided for all circuits.

Lightning Protection System

System Description

A lightning protection system shall be provided to protect structure and associated appurtenances as recommended in the Lightning Risk Assessment, which shall consist of a system of conductance designed to safely divert the energy of a lightning strike to the earth while minimizing damage to the facility.

Design Criteria

System shall comply with NFPA 780 - Standard for the Installation of Lightning Protection Systems. The installer shall be certified by the Lightning Protection Institute and the installing Contractor shall provide a *UL Master Label for the completed system.*

Equipment and Components

Materials shall be rated Class I for structure heights of 23 m (75') or less. Class II for structure heights above 23 m (75').

Air terminals shall be solid copper ½" x 18" with a tapered point, 250 mm (10") minimum height above object to be protected and have a mounting base suitable for the location.

Conductors shall be bare-stranded copper, except aluminum shall be used where installation is in contact with aluminum surfaces.

Ground rods shall be copper-clad steel, 19 mm (3/4") diameter by 3 m(10') long, with a bronze mechanical-type conductor clamp.

Distribution

The system layout and design shall encompass all exterior surfaces of the facilities under a complete zone of protection as defined by NFPA 780. Air terminal spacing shall not exceed 6.1 m (20 ft), except spacing up to 15 m (50') is allowed for non-perimeter areas of flat roofs. Locations shall comply with NFPA 780 and shall generally follow the building roof ridges and/or perimeters.

One (1) down conductor shall be provided for every 76.3 m (250 ft) of building perimeter, with a minimum of two (2) conductors. Conductors shall be configured to provide a two-way path to earth. Metal bodies shall be bonded to the conductor system in accordance with NFPA 780.

A ground rod shall be connected to each down conductor. The electric power service grounding system shall be bonded to the Lightning Protection System.

Lighting Systems

System Description

A complete lighting system for all indoor and outdoor illumination shall be provided. The indoor lighting system shall consist of energy-efficient LED lighting fixtures. Incandescent lighting shall not be used. The outdoor lighting system shall consist of LED fixtures.

In general, indoor lighting controls shall consist of a mixture of low-voltage switches as part of a distributed digital lighting control system, room occupancy sensors, and line voltage switches. Spaces that can be subdivided with movable partitions shall be provided with separate controls for each partitioned space. Specialty spaces, such as auditoriums, shall be provided with architectural lighting controls. Building-mounted outdoor lighting controls shall consist of photocells and time switches with line voltage manual override switches. Pole-mounted lighting shall be provided with motion sensors for bi-level switching. Luminaires shall normally operate at a low level during nighttime hours but shall increase to 100% output when they sense motion.

Emergency/night interior lighting shall be provided by unswitched branch circuits where applicable and with UL 924 automatic override devices where emergency lighting is desired to be switched along with the normal-power lighting. These emergency branch circuits shall be fed from an emergency lighting panel. Exit signs and emergency egress lighting shall be provided throughout the facility to illuminate egress corridors, stairwells, lobbies, etc. Exit and egress lighting circuits shall originate from emergency system branch panels.

Illuminance Levels Design Criteria

Space	Average Maintained Foot-candles
Office	30
Laboratory, Support, Technical Area	50
Laboratory Bench and Tabletop	50-100
Conference	30
Corridor	5-15
Lobby	10-15
Toilets	5-15
Storage	10-15
Task	40
Open Parking	0.5
Covered Parking	1-2
Exterior Lighting	1-2

Equipment and Components

Space	Fixture Type
Laboratory and Laboratory Support	Direct/indirect LED fixtures; continuous dimming driver to allow dimming in all labs (dimming specifically requested in Imaging Lab and DNA Screening shall be special dimmable down to 1%), task lighting
Office	suspended indirect LED fixture; continuous dimming driver to allow dimming, task lighting
Common Area	Premium quality architectural LED lighting
Circulation	**300 mm x 1200 mm (1' x 4')**, recessed LED troffer with deep cell parabolic louver
Building Support	**1200 mm (4')**, surface- or pendant-mounted, open industrial LED fixture
Open Parking	LED parking lot pole fixture
Closed Parking	LED surface mounted fixture
Exterior Lighting	LED poles in parking lots, LED bollard along walkways, exterior lighting shall meet LEED Light Pollution Reduction requirements
Cold Rooms	Rated for intended applications
Washrooms and Wet Areas	UL Listed for a wet location

EXIT signs shall be LED type, located in all paths of egress.

Lamps and Ballasts

In general, LED luminaires to be LM-79 and LM-80 tested, have two step MacAdam ellipse tolerance, and have a minimum CRI of 80 to be supplied with applicable drivers or power supplies.

Lighting Control

Photocells and occupancy sensors shall be utilized in select spaces to minimize energy consumption. Occupancy sensors shall be passive infrared or a combination infrared/ultrasonic type.

Dimmers shall be provided in most spaces as the code-required means to reduce the lighting levels.

Distribution

In general, LED lighting shall be 277V.

All lighting circuit wiring shall be in conduit and routed concealed within walls, partitions, or ceiling spaces. Surface-mounted conduit shall be minimized and used only in non-finished spaces.

The ampacity of lighting circuits shall be sized for 25% future growth plus 125% continuous loading factor per the National Electric Code.

Fire Alarm System

System Description

The fire alarm system shall be a stand-alone, fully addressable system comprised of smoke detectors, heat detectors, duct detectors, manual pull stations, and audio/visual signaling devices with voice communication capabilities.

The main fire alarm equipment shall be located near the main electrical room.

An annunciator panel shall be provided at the main fire department entrance to the facility.

The system shall be interlocked to the Capitol Police System and the Emergency Address System so that operators at each facility are aware of any fire conditions.

Fire alarm VESDA systems: Provide VESDA (Very Early Smoke Detection Apparatus) systems in laboratory and evidence storage rooms as called for in the room data sheets/in the RFP space descriptions]. The VESDA systems shall be monitored by the fire alarm system. Smoke detection by a VESDA system shall place the fire alarm system into alarm.

Design Criteria

The fire alarm system shall comply with requirements of NFPA 72 for a protected premise signaling system except as modified and supplemented by this document.

A main fire alarm control panel shall be located at the Main Electrical Room.

A fire alarm annunciator panel shall be mounted at the main building entrance.

Audio/visual devices shall be installed in all areas of the building in accordance with the NFPA and the ADA Guidelines.

Smoke detectors shall be installed as required by the National Fire Protection Association, the International Building Code, and the International Fire Code. Smoke detectors shall be installed in, but not limited to, the following locations: air handling units, corridors, elevator lobbies, elevator machine rooms, electrical equipment rooms, and the tops of stairs.

Heat detectors shall be installed in areas that are not feasible for smoke detectors. In addition, provide heat detectors in all storage areas, mechanical rooms, laboratories, and janitors' closets.

Manual Pull Stations shall be installed adjacent to all exit doors, in each elevator lobby, and where required by code.

Explosion proof devices shall be provided in rooms with flammable liquid storage.

The fire alarm contractor shall provide an air-aspirating smoke detection system for rooms which are protected by a single interlock pre-action system, Instrument Rooms, the Evidence Room, and the File Storage Room.

The fire alarm system shall be linked with Capitol Police System.

Equipment and Material

The fire alarm system shall be an electronically multiplexed one-way voice communication system.

Remote transponder panels shall be used to provide supervised amplifiers and signal circuits for audio/visual devices and magnetic door holders.

The system shall utilize individual, addressable photoelectric smoke detectors; heat detectors; addressable manual pull stations; and addressable monitor and control modules. The system shall monitor all sprinkler supervisory and water flow switches and shall interface with elevators, HVAC smoke control, and smoke fire dampers.

Distribution

All initiating and signaling devices shall operate at 24VDC and shall be installed in accordance with manufacturer's specifications.

All wiring shall be installed in conduit. Minimum conduit size may be 1/2".

ELECTRICAL SYSTEM STANDARDS

Feeder and Branch Circuits

Secondary distribution and branch circuit system design shall be based on a maximum of 5% voltage drop from the transformer to the utilization equipment.

Neutral conductors derived from harmonic mitigating transformers shall be capable of carrying 150 % of normal phase current from transformer to first distribution panelboard. Neutral conductors from distribution panelboard to downstream panelboard or device do not need to be increased in size for harmonic mitigation.

Feeder and branch circuit sizes shall be based on the load supplied and adjusted for voltage drop.

Feeder and branch circuit ampacity shall not be smaller than the upstream overcurrent device or downstream equipment bus.

Circuit Voltage Length	Wire Size
480Y/277 volt circuits over 200' in length	Increase wire size one size for each 200' of length
208Y/120 volt circuits over 100' in length	Increase wire size one size for each 100' of length

Receptacles

Refer to the Laboratory Functional and Technical Criteria, in other sections of this narrative for requirements in these programmed spaces.

Receptacles in offices, general support rooms and similar locations, (depending upon room layout) shall be provided with a minimum of (3) outlets total. Enclosed offices shall be provided with two double duplex receptacles on opposing walls and single duplex devices on remaining walls.

Conference rooms and common areas shall be provided with at least (1) duplex receptacle per wall. Typically, receptacles to be spaced on 3.5 m (12') centers.

Building Support (Equipment rooms, storage rooms) shall be provided with (1) duplex receptacle per wall or (1) per every 14 square meters (150 square feet), whichever is greater

Duplex receptacles in office areas, lounges, lobbies, etc., shall be circuited with an average of (6) duplex receptacles per 20A, single pole circuit.

Receptacles designated to serve desk top computer loads shall be circuited with an average of (3) duplex receptacles per 20A, single pole circuit.

Each workstation to receive minimum of (3) receptacles that shall be circuited with maximum of (4) receptacles per 20A, single pole circuit.

Receptacles along laboratory benches shall be circuited with an average of (4) duplex receptacles per 20A, single pole circuit.

Equipment such as refrigerators or freezers shall be connected to dedicated circuits on standby generator power.

Sensitive electronic laboratory equipment shall be connected to the UPS system.

Each fume hood to be provided with a minimum of (2) 20A single pole circuits.

Ground fault protection shall be provided for outlets within 2 m (6') of a sink edge and other wet locations, and where required by code. Electrical outlets shall be individually ground fault interrupted (GFCI) protected (not at the circuit breaker or first outlet on the circuit).

Receptacles required to be automatically controlled shall be controlled by an occupancy sensor located in proximity to the receptacle.

Overcurrent Protective Device Coordination

Overcurrent protective devices supporting Emergency NEC Article 700 (typically exit and egress lighting), Legally Required NEC Article 701, and NEC Article 695 (fire pump) systems shall be selectively coordinated from source of supply (normal and emergency) through final device. Selectivity shall be through the entire instantaneous region including ground fault.

Overcurrent protective device shall be selectively coordinated with supply side overcurrent protective devices as follows:

System	Seconds
Emergency System (NEC 700)	0.01
Legally Required System (NEC 701)	0.01
Optional Standby System (NEC 702)	0.10
Fire Pump	0.01
Elevators	0.01
Normal Power System	0.10

Arc Flash

The electrical distribution system shall be configured to allow equipment to be worked on while energized using reasonable PPE (category 3 or less). Arc flash calculations for Arc Flash Incident Energy (AFIE) levels and flash protection boundary distances shall be calculated and provided by the contractor based on the actual equipment supplied using an independent Registered Profession Engineer in the State of Wisconsin using SKM System Analysis tools or equivalent.

Fault Current Ratings

The preliminary available fault current shall be determined during design of the project and shall be verified by 3rd party calculations provided in contractor submittals.

Equipment shall have ratings not less than the calculated symmetrical short circuit value at each point in the distribution system.

Equipment shall be fully rated for the calculated available short circuit. Series ratings shall not be allowed.

Conduit and Raceway

Conduit Types and Application	
Conduit Type	**Application**
Electrical Metallic Tubing (EMT)	Low voltage feeders and branch circuit wiring where installed above 1.95 m (6’-6”) AFF, when exposed in unfinished spaces.
Galvanized Rigid Steel (GRS)	Low voltage feeders and branch circuit wiring where exposed below 1.95 m (6’-6”) AFF. Exterior locations, Under slab, Areas subject to physical abuse

Conduit Types and Application	
Conduit Type	**Application**
Intermediate Metal Conduit (IMC)	Low voltage feeders and branch circuit wiring where exposed below 1.95 m (6'-6") AFF.
Schedule 40 PVC	Concrete encased duct banks and direct buried under slab

Conduit shall be run concealed, unless installed in mechanical, electrical, telecom, interstitial areas and other similar unfinished spaces.

Minimum conduit size for power circuit home runs shall be 21 mm (3/4").

Conduits shall be independently supported.

All conduit stub-ups from below floor or in floor (where specifically allowed) shall be galvanized rigid steel.

Surface mounted conduits below 1.95 m (6'-6") shall be rigid galvanized steel with threaded fittings and boxes shall be cast steel.

EMT fittings shall be set screw type with steel body.

Conduits and boxes shall be installed a minimum of 305 mm (1') and a maximum of 10 m(3') above ceilings. Installation outside of this zone shall not be allowed. Special permission may be obtained to run ceiling conduits outside of this zone providing that pull, and junction boxes are unobstructed and accessible from floor using a standard 8-foot ladder. Also, light fixtures, smoke detectors, junction and pull boxes and other equipment that is installed on or directly above the ceiling shall be serviced and maintained without damage to ceiling tiles and other building elements.

Raceways for 2-hour rated systems shall be installed in either: UL listed assemblies for 2-hour fire rated applications or in 2-hour rated enclosures.

For lighting conduit homeruns, a j-box shall be located above light fixture in an accessible location to allow for future expansion.

No home run shall terminate in a wall mounted device box. A separate J-box shall be provided above device box above ceiling in an accessible location.

Wire and Cable

Cable Types		
Voltage Class	**Insulation**	**Notes**
600 V	THHN,THWN-2 or XHHW-2	Conductors shall be stranded copper. Aluminum #1/0 and larger may be used for phase and neutral conductors for transformer feeders, switchboard feeders, and panelboard feeders

All feeder conductors to be 98% conductivity copper or 65% conductivity aluminum.

All branch wiring conductors shall be 98% conductivity copper.

Minimum wire size #12 AWG, for all areas.

Multi-wire branch circuits shall be provided with dedicated neutral conductors for each phase, common neutral circuits shall not be permitted.

Feeder conductors shall be terminated using compression lugs. Mechanical lugs shall not be used for feeders. Branch circuit conductors shall typically be terminated using mechanical lugs.

Conductor insulation color code shall be as follows:

Conductor Color Code	
208Y/120V	**480Y/277V**
Phase A – Black	Phase A – Brown
Phase B – Red	Phase B – Orange
Phase C – Blue	Phase C – Yellow
Neutral – White	Neutral – Gray
Ground – Green	Ground – Green

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Wiring Devices

Wiring devices shall be specification grade, complete with all accessories.

Isolated ground receptacles shall be used only when necessary. If used, isolated grounds shall be in addition to equipment ground. Panelboard shall have an isolated ground bus that shall be connected back to applicable derived system or service.

Receptacle and Switch Color Code	
Normal Power	White per RFP
Emergency Power	Red per RFP
UPS Power	Gray per RFP
Enclosed Office Computer Receptacle	White

Receptacles, switches, etc., shall have faceplates with labeling indicating system panel and circuit identification.

Motors and Motor Control

Stand-alone motor disconnects (separate from starter or VFD) shall be fused and shall be installed at each motor.

Motors smaller than 60 HP that are not provided with a variable frequency drive (VFD) shall be provided with an across the line combination magnetic motor starter. Motors 60 HP and larger that are not provided with a variable frequency drive (VFD) shall be provided with reduced voltage motor starter. Refer to other sections of the narrative for VFD requirements.

Combination motor starters shall use fuses. For mechanical and HVAC equipment that are not provided with a VFD, individual combination motor starters shall be located within sight of the motor.

Selected motors shall have variable frequency drives (VFDs) as described in other sections of this narrative.

VFD drive specifications shall require that the VFDs for the project be provided such that the Special Category harmonic limits recommended in IEEE 519-1992 be maintained. The supplier of the drive shall be required to perform harmonic analysis as defined in IEEE 519-1992 and employ as a minimum 6 pulse VFD with equivalent 5% impedance by employing a combination of line reactors and/or DC bus choke to achieve the equivalent impedance. In addition to VFD impedance, the drive manufacturer shall be required to provide active harmonic filtering connected to the power distribution system in locations as defined on the electrical one-line diagrams.

Equipment that is provided with more than one motor such as duplex or triplex sump pumps, air compressors, vacuum pumps, etc. shall be connected to redundant power supplies and controls such that one motor and associated power source can be taken out of service for maintenance without disabling the complete system.

Grounding and Bonding

A separate, insulated equipment grounding conductor, sized per the National Electrical Code, shall be provided within each raceway and cable tray, with each end terminated on a suitable lug, bus, enclosure, or bushing.

A grounding riser with ground bar shall be located in each electrical closet.

Surge Protection

Surge Protective Devices (SPD) shall be used as design dictates. A single SPD device shall be installed on the load side of the main service disconnect, the generator switchboard and at the first distribution panel on the load side to each automatic transfer switch. Second-tier SPD devices at branch panelboards and other locations shall be incorporated as required but are not anticipated at this time.

EMF and Harmonics

Electrical vaults and major electrical equipment rooms containing transformers larger than 300 kVA shall not be located adjacent to occupied workstations.

The power service shall be required to meet the requirements IEEE Standard 519. Harmonic distortion shall be limited to 5 % maximum at the point of common coupling. The point of common coupling is being defined as the secondary side of upstream utility transformer.

Electrical Rooms

Electrical equipment rooms shall be positioned to facilitate unobstructed initial installation of large equipment, and unobstructed removal and replacement of defective equipment.

Adequate space shall be provided for maintenance of electrical equipment and equipment removal.

Pipes and other equipment foreign to the electrical equipment shall not be located in, enter, or pass through dedicated electrical spaces.

Panelboards shall be grouped, surface-mounted, in dedicated ventilated rooms. Electrical rooms shall be stacked vertically whenever practicable.

Penthouses and mechanical rooms shall be utilized for electrical equipment and panelboard placement where applicable for optimization of space.

Panelboards serving lighting and appliance circuits shall be located on the same level as the circuits they serve and shall be served from source of supply with a dedicated feeder.

Feed through and sub fed panelboards shall not be used unless required to comply with selective coordination requirements

Prohibited Materials and Construction Practices

The following paragraphs list prohibited materials and construction practices:

The entire Emergency/Standby power distribution system shall consist of conduit and wire. Busway shall not be used in any portion of this system.

Use of wood strips and wood screws to support lighting fixtures.

Extra-flexible non-labeled conduit.

Conduit installation in concrete slabs.

Use of wire ties to support conduit.

Suspension systems for conduits, fixtures, etc. connected to other utility equipment is prohibited. Any suspension system with multiple levels must be hung from trapeze suspension systems.

Use of Incompatible Materials: Aluminum fittings and boxes shall not be used with steel conduit. All materials in a raceway system shall be compatible.

Direct burial electrical cable.

Power Distribution Acceptance Testing

An independent testing firm shall be employed to assure all electrical equipment, both contractor and Owner supplied, is operational and within industry and manufacturer's tolerances and is installed in accordance with design specifications.

Testing firm shall be a corporately and financially independent testing organization that can function as an unbiased testing authority, professionally independent of the manufacturer, supplier, and installers of equipment or system evaluated by the testing firm. The testing firm's on-site technical person shall be currently certified by the International Electrical Testing Association in electrical power distribution system testing. Items to be tested and inspected are as follows:

Acceptance Tests	
600V Conductors and Cables	Automatic Transfer Switches
Electrical Metering	Motor Control
Engine Generators	Ground Fault Protection Systems
Transformers	Grounding Systems
	Protective Relays
Switchboards	Instrument Transformers
Low-Voltage Power Circuit Breakers	Thermographic Survey
Low-Voltage Insulated-Case/Molded-Case Circuit Breakers	Lighting and Appliance Panelboards
Low-Voltage Disconnect Switches	Static Uninterruptable Power Supply Systems
Enclosed Circuit Breakers	Distribution Panelboards
Lightning Protection System	Surge Protective Devices

Power Distribution:

The electrical system shall be designed to handle loads based on 4 watts/ SF for equipment and 1.0 watts /SF for lighting.

From one to four workstations - 2 circuits (one for miscellaneous equipment [furniture circuit #1], one for computers [furniture circuit #2]).

From five to six workstations - 3 circuits (one for miscellaneous equipment [furniture circuit #1], two for computers [furniture circuit #2 & #3])

For systems furniture assemblies exceeding six workstations, two electrical connections are required since 4 or more circuits are required. In this case, the systems furniture assembly is fed from two locations and is then divided electrically into two smaller furniture assemblies. The quantity of circuits is then determined by the number of workstations on each section and follows the requirements stated above.

Distribution of power through systems furniture for the large office equipment (laser printers and copiers) shall be accomplished using the 4th circuit of the systems furniture wiring scheme with the dedicated neutral and ground conductors and orange colored devices. No more than two large pieces of office equipment shall be fed from one circuit. All systems furniture circuits using the 4th dedicated circuits shall also have the dedicated neutrals and grounds run back to the electrical distribution panel.

Conference and Training Center Power Requirements:
If power and data are accessed through the floor, a flush-mount poke through is required in all conference rooms and training centers. A stamped steel floor box (Square D or equal) can be used for power and cabling in the open workstation area for routing power and cabling to workstations that do not have access to columns or walls. The floor boxes need to be aesthetically pleasing and able to handle the required capacity. All required connections and adaptations to be provided by Proposer.

E. Communications

Equipment Rooms

General

All Communications Equipment Rooms shall be dedicated to their purpose. The rooms will also house Electronic Security cabling and equipment.

Each room will be provided with card access security control, dedicated power from the central building UPS system, and continuous HVAC cooling which is separate from the general building HVAC system. Room location should be chosen to minimize the threat of damage by external sources which could impact communications and security functions.

Room types include the following:
Building Entrance Facility (BEF) - Incoming services will be brought into the facility at the BEF. The building demarcation point(s) (DEMARC) will be located in this room. External service providers will bring services into the BEF for connection to the building's cabling system and network equipment.
Main Equipment Room (MER) – The MER provides a protected environment for backbone cabling terminations and systems equipment and serves the overall building
Telecom Room (TR) – The TR provides a protected environment for Horizontal and backbone cabling terminations and systems equipment and serves a limited area of the building

The equipment rooms should be located central to the areas that they serve and have clear access to cable pathways coming in and out of the rooms. Pedestrian and equipment access should be through a

door located off a building corridor and should not require access through any other locked room or program space. Door width will be at least three feet.

Suspended ceilings should not typically be provided; however, some means of maintaining the environmental parameters of the rooms must be implemented. If a suspended ceiling is required to maintain environmental integrity, the ceiling should be installed high enough to allow all pathways and room services to come into the rooms below the ceiling.

Floors, walls and ceilings in the support rooms will be treated to minimize dust and the potential for static electricity. At least two walls will be covered with fire treated plywood (3/4-inch-thick, 8 feet high, A-C grade).

No piping or ductwork will pass over or through any equipment room, unless they are used to provide services to the room itself. Piping and ductwork used to provide services to these rooms will be coordinated with the anticipated Technology equipment layout within the rooms.

Building Entrance Facility (BEF)
Incoming services will be brought into the facility at the BEF. The building demarcation point(s) (DEMARC) will be located in this room. External service providers will bring services into the BEF for connection to the building's cabling system and network equipment.

Two such BEFs shall be established.

Redundant incoming service has been requested, with two separate cable routes established from two separate service provider connection points into the two separate BEF spaces.

Each BEF shall be separate from other equipment rooms (e.g. the Main Equipment Room (2) and Telecom Rooms) and be keyed separately from all other building doors. The rooms shall be fitted with an access control credential reader.

Each BEF should be sized at a minimum of 100 square feet (10 feet by 10 feet) of space.

Main Equipment Room (MER)
As with the BEFs, two redundant MERs have been requested. Each of the MERs will connect to both BEFs via diverse cabling routes,

Each MER should be located in proximity to a separate BEF.

The building MERs serve the overall building and will also support the horizontal cabling and related equipment for the areas around their locations in the building.

Each MER should be sized at a minimum of 150 total square feet (10 feet by 15 feet) of space.

One of the rooms will house voice backbone cable terminations. Both rooms will house data network equipment and data backbone cable terminations.

Link each BEF to each of the building MERs with single mode and multimode fiber optic cabling.

Link the MERs with 25-pair copper twisted-pair backbone cabling to facilitate analog phone connections expected to originate in (1) of the (2) building MERs.

Telecom Rooms (TR)
The number of Telecom Rooms will depend on the building footprint and floor count. Maximum horizontal cable distance from the Equipment Outlet to the TR is 295 feet and TRs must be located to maintain cable distances below this maximum. Work areas shall be served by a TR on the same floor as the work area.

Each TR shall be sized at a minimum of 120 square feet (10 feet by 12 feet) of space.

Link each TR with each of the building MERs with single mode and multimode fiber optic cabling. Cables shall follow physically diverse routes. Link each TR to (1) MER with 25-pair copper backbone twisted-pair cabling.

Server Room
The space programming identifies the need for a 200 square foot server room in the building. This room shall support a minimum of (5) free-standing equipment cabinets, which should be possible within the programmed 200 square foot area. The initially installed equipment contained in this room upon initial building occupation is expected to require (2) equipment cabinets.

The server room infrastructure requirements include UPS power, surge suppression, VESDA smoke detection, pre-action sprinklers, access control and dedicated cooling. A clean agent fire suppression system is not required.

Equipment Racks
All copper and fiber optic patch panels will be installed in 7-foot-high, standard TIA 19" equipment racks.

Horizontal and vertical cable management will be provided in all equipment racks.

Equipment racks and wall fields will be sized with a minimum of 50% spare capacity for cable additions.

Grounding and Bonding
The Technology grounding system will provide equipment protection in all support rooms. Ground bars and conductors will be provided to minimize the potential difference between the grounding system and the electrical sources powering communications and electronic security equipment.

Electrical Requirements
Equipment rooms will be connected to the building standby power source. Power from the building's central UPS system will be used to maintain system operation while the standby power source comes on-line.

Electrical Service - MER

Circuit Type	Source	Circuit Quantity	Device Type
120V/20A	UPS	(2) per equipment rack	L5-20R
208V/20A; 1-phase	UPS	(2) per equipment rack	L6-20R

Electrical Service - TR

Circuit Type	Source	Circuit Quantity	Device Type
120V/ 20A	UPS	(2) per equipment rack	L5-20R

Electrical Service - Server Room

Circuit Type	Source	Circuit Quantity	Device Type
208V/30A; 3-phase	UPS	(2) per equipment cabinet	L21-30R

Server room equipment cabinets will be serviced using redundant, cabinet-mounted PDUs configured in typical A/B redundancy mode. Current requirement accounts for 3-phase, 208V PDUs that can accommodate combination of single phase 208V and 120V loads.

Equipment rooms will be configured with "convenience" outlets – circuited separately from the services identified above – on all perimeter walls.

Equipment rooms will be lit to a minimum of 50-foot candles horizontal illumination and 20-foot candles vertical illumination between the equipment rack rows (measured at three feet above the floor).

Access to Technology support rooms will be controlled by the building access control system to allow the Owner to track access to the rooms.

Mechanical Requirements
Equipment rooms will be maintained between 64- and 81-degrees Fahrenheit with maximum relative humidity of 60% and dewpoint temperatures between 42- and 59-degrees Fahrenheit at all times. If the building HVAC system cannot provide continuous operation or adequate capacity to meet these criteria, supplemental cooling units will be installed.

Cooling requirements for each MER and TR will be sized at 2 tons (i.e. 24,000 BTU/h) per room.

Based on load data from existing DOJ server equipment, cooling for each equipment cabinet in the Server Room will be sized to accommodate approximately 6 kVA (1.7 tons) of load.

Fire Protection
The MER and TRs will be sprinkled and include protective cages around the sprinkler heads.

Communications Structured Cabling

General

The structured cabling system will be provided as a certified cabling system. The manufacturer or manufacturers of the cable and termination components will qualify and warranty the performance of the entire system.

All cables and related terminations, support and grounding hardware shall be furnished, installed, wired, labeled, terminated, tested and documented.

At this time, there are no known requirements for physically segregated cabling systems to serve the various departments within the facility. The Agency may provide virtual segregation at the network layer using separate network hardware or encryption tunnels (i.e. VPNs), but a single structured cabling system for the building will provide all required cabling.

Service Provider Cabling
The Proposer is responsible to work with the tenant's telephone and network service provider(s) to ensure proper cabling can be brought into the building. This may include building penetrations and cable pathways, to bring service into the dedicated Entrance Room(s).

The Proposer shall arrange for cabling from the tenant specified Internet Service Provider(s) (ISP) and Community Antenna Cable (CATV) TV provider to be installed into the Entrance Room(s) (DMARC location) during construction. Incoming service from the ISP serving the facility will come into both BEFs on cable provide by the ISP.

Redundancy level and cable types for incoming services will be negotiated with the service providers.

DOJ shall be responsible for service charges thereafter.

Intra-Building Backbone Cabling
Intra-building Backbone cabling links the various equipment rooms – BEF, MER and TR – which serve the building.

Intra-Building Backbone Cabling Summary

Backbone Cable Application	Cable Type	Cable Quantity	Redundancy
BEFs to MERs	Single Mode OS2 Multimode OM4 Copper Twisted pair (voice & other analog)	24 strands 24 strands 25-pair per TR & MER	Redundant cables; diverse routes None
MERs to TRs	Multimode OM4 Copper Twisted pair (voice & other analog)	24 strands 25-pair per TR	Redundant cables; diverse routes None

The data system will use fiber optic cabling to distribute data service from BEFs to the MERs and from MERs to the TRs. The data backbone from the MER to each TR will be sized as indicated in the table above.

All fiber strands will terminate in LC-type connectors and be secured in duplex LC-type adapters in rack mounted patch panels in the BEFs, MERs and TRs.

Cabling for voice and other legacy analog devices will use high pair-count copper cabling to distribute voice service from the MER to the TRs. The voice backbone will typically be sized at 25-pairs per TR.

Copper twisted-pair cabling will terminate on rack-mounted 110-type blocks at the TRs and on wall-mounted 110-type blocks at each MER and BEF.

Horizontal Cabling

The Horizontal Cable System is based on the installation of 4-pair, copper twisted-pair cables from the Equipment Outlet (EO) in the work area to the Telecom Room (or MER) service the work area. The combined cable and termination hardware are referred to as the "Permanent Link".

There shall be no distinction between Horizontal twisted-pair cables designated for "DATA" and "VOICE" (Telephone and/or other analog) applications.

Horizontal cables shall each be terminated at their designated workstation location in a Modular Jacks (8-pin, 8-conductor). These connector assemblies shall snap into a mounting frame. The combined assembly is referred to as the Equipment Outlet (EO).

At select display locations, the 4-pair cable will be supplemented with coaxial cable terminated in a F-type connector.

Horizontal Cabling Summary

Horizontal Cable Application	Cable Type	Cable Type
Data (e.g. computer networks, VoIP)	Copper UTP	Category 6A
Wireless Data (Wi-Fi)	Copper UTP	Category 6A
Analog voice	Copper UTP	Category 6A
Security (i.e. CCTV) Cameras	Copper UTP	Category 6A
Wall-mounted displays	Copper UTP; Coax	Category 6A; RG-6

Each Horizontal Cable connect to the nearest TR with a 4-pair UTP, Category 6A cable. All four pairs will terminate at the outlet and in the TR.

Equipment Outlet configuration, especially connector count at each location shall be as detailed in the able below. Specific requirements to satisfy user needs will be implemented as space programming is completed. The table values show the number of Equipment Outlets in each room and the number of connectors (typically a modular jack) at each outlet.

Equipment Outlet Configuration

Room or Space Function	No. of EOs	Jacks per EO	CATV Connectors per EO
Typical Enclosed Office	2	2	1
Typical Open Office Cubical	2	2	0
Shared Printer/Fax Area	3	2	0
Copy Room	2	2	0
Conference Room (<200 sf)	2	2	1
Conference Room (>200 sf)	3	4	1
Training Room (per seat)	1	1	0
Training Room (per podium)	1	3	0
Lab Support Rooms	As indicated by lab programming	2	0

Room or Space Function	No. of EOs	Jacks per EO	CATV Connectors per EO
Labs – Bench top	As indicated by lab programming	2	0
Wireless Access Point	1	2	0

Cables from EOs will run in conduit, J-hooks and cable trays to the TRs.

Fiber optic Horizontal Cabling is not currently planned.

Patch Cables
Patch cables – copper twisted-pair, fiber optic and coax – will be provided by the Agency.

Pathways
Pathways will be installed to connect BEF, MER and TRs in an efficient manner.

Cable pathways from the EOs to the TRs will use conduit above inaccessible ceilings, cable tray above accessible ceilings and major cable runs and J-hooks for aggregating small quantities of cables in common areas.

All BEFs, MERs, TRs and the Server Room will include overhead cable runways for in-room cable routing and support.

Cable pathways will be sized to a maximum of 40% fill based on cable and pathway cross-section areas plus spare capacity. Minimum pathway sizing is as follows:
Incoming Service - Minimum of (2) 4" and (2) 3" conduits from property line to each BEF.
Indoor Backbone - Multiple 4" conduit as required for backbone cable quantities.
Horizontal Cable - 1-1/4" minimum conduit size at Equipment Outlet.

All backbone fiber optic cabling will be installed in flexible, nonmetallic innerduct. This innerduct will protect the cables and segregate conduits and conduit sleeves.

Provide a minimum of two 3” conduit and gooseneck fitting from the uppermost floor TR to the roof Tenant shall retain ability to mount rooftop equipment with Lessor coordination.

Sound Masking System:
The building is to include a sound masking system configured to reduce sound transmission and noise reduction coefficient. The intent of the system is to provide privacy for the staff working in the open office spaces and to cover the speech from one area affecting another. In order to achieve this, the Proposer shall properly design and specify a sound masking system for the office spaces of the building.

The sound masking systems shall produce a digital broadband sound spectrum, complementary to the speech spectrum that effectively covers speech levels. The Proposer shall investigate system types utilizing “white” or “pink” noise and coordinate with DFDM.

The system shall be UL listed and meet the ASTM E-1130 standards for speech privacy and sound uniformity.

The sound masking system shall be zoned and provide individual control for each of the Agency groups within the building via a software interface. Sound masking will not be required in building mechanical rooms, storage rooms, and any rooms with recording equipment.

Central equipment for this system will be in the Communications Equipment Room(s).

Two-Way Emergency Communications:
Two-way communication system will be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the level of exit discharge. The system is not required at landings serving only service or freight elevators not designated as part of the accessible means of egress.

System shall include full duplex voice capability to enhance communication during emergency situations.

Alternatively, if areas of refuge are established within the building, the two-way communication system will be provided with the areas of refuge in lieu of at the elevator landings.

Proposer shall coordinate locations of all devices and communicate with the local fire marshal to determine location of master control panel and requirements.

Central equipment for this system will be located in the Communications Equipment Room(s).

Distributed Antenna System (DAS) - Emergency Responder Radios
Provide Emergency Responder Radio Coverage in accordance with Section 510 of the International Fire Code. The system will provide 95% of all areas on each floor with a minimum sending and receiving signal strength of -95 dBm. A donor antenna will be mounted on the roof to interface with the local emergency responder's radio system.

Head end equipment for this system will be located in the TRs. Cabling and antennas will be distributed throughout the facility and will connect back to the head end equipment in the TRs.

Distributed Antenna System (DAS) - Cellular Repeater
The cellular repeater system will boost wireless signals associated with cell phones within the building. The system will consist of some type of signal donor means (e.g. roof antenna or carrier fiber optic link), head-end signal processing equipment, coaxial or fiber cable for signal distribution within the building, and ceiling-mounted antennas within building spaces at locations dictated by signal coverage modeling software.

Carriers will typically require a design review and sign-off before they will allow these in-building systems to connect to their networks. This extensive carrier interaction typically results in the detailed system design being performed by the systems integrator who will also do the system installation.

If possible, the passive distribution portion (coaxial cable, antennas) for this system should be combined with the emergency responder radio coverage system. The following list of design criteria should be used when engaging a design/installation systems integrator:

System should interface with and boost signals from DOJ's preferred wireless vendor, Verizon Wireless. In-building cellular signal coverage may be supplemented by the building's Wi-Fi system when individual devices support Voice-over-Wi-Fi.
DOJ's selected wireless carrier will define the type of signal donor used (i.e. wired or wireless connection to wireless network).

The system head-end equipment does not need to support multiple wireless carriers but should be flexible enough to provide emergency responder radio coverage services.
Verizon Wireless will define which Verizon bands will be supported by the system.

Network Electronics
Network electronics will be sized, furnished and installed by the Agency.

Audio-Visual
Provide pathways to accommodate agency-provided cabling and equipment.

Each conference room greater than 8 persons shall be configured to support the following:
Ceiling mounted projector and Recessed dropdown screen
or
Wall-mounted Display
Dedicated cabling from wall to projector to support Audio /Video equipment

For Large Conference and Training rooms greater than or equal to 50 people, additional audio/video conferencing capability is required. The design should provide include the ability to support:
- In-room cameras for video conferencing and training
- A lockable closet to house audio equipment
- Microphone outlets in the front of the room
- In-ceiling speakers to supplement audio.
- An assistive listening system.

Wireless Data (Wi-Fi)
Provide Structured Cabling to support Wireless Access Points (WAP; by Agency) throughout the facility. WAP outlet locations will be shown on the floor plans and will be laid out based on both building coverage and network capacity.

Locate WAP outlets to ensure that all areas of the building will be serviced by a WAP that traverses at most 2 interior partitions. For open areas, additional WAP locations may be included based on anticipated quantity of wireless devices.

In general, WAP locations will be spaced a maximum of 30 feet apart plus cabling dedicated to each large conference room.

Provide (2) Category 6A cables from each Equipment Outlet for WAP to the nearest TR.

If the Agency runs a wireless coverage simulation software based on the type of WAP equipment they will provide, the WAP outlets will be placed on the floor plans as directed by the results of that simulation.

Overhead Paging:
Provide a building-wide paging system consisting of ceiling-mounted speakers, rack-mounted amplifiers, an interface to the facility's phone system to initiate the paging and an interface to the building fire alarm mass notification system.

System shall be equipped with an additional auxiliary input for external audio sources and automatic muting of background audio during pages. Program source input shall accommodate signals from radio, tape, CD, digital music sources, cable or digital audio messaging units etc.

Per DOA request, the paging system shall be based on the Digital Acoustics IP7 IP-paging hardware and accompanying TalkMaster control software. Internal paging zones will be as defined by the Agency and will include a building all-call zone for announcements from Capitol Police.

The audio output from the IP7 system will route to the fire alarm system and use a relay control signal to switch the fire alarm panel audio to its auxiliary input. All necessary input and output precedence control will be handled by the fire alarm panel. This configuration will allow the overhead paging system to use the fire alarm speakers in lieu of a dedicated set of paging speakers.

Central equipment for this system will be located in the Communications Equipment Room(s).

F. Security CCTV/Security Access Control

Security Management systems shall be installed in accordance with best practices of the trade, and related standards/codes, such as ADA SIA, TIA/EIA U.L, NFPA, NBFAA.

It is the responsibility of the Contractor to include any and all items required for a complete/functional SMS, even if not identified in related narratives, etc.

ACMS shall be fully compliant with Capitol Police Specifications Section 28 13 00 – Access Control and DFDM master specification 28 10 00 – Access Control System

INTRODUCTION

Purpose

This describes the broad magnitude, functions and requirements of the SMS for the Project. It presents a description of the individual systems' proposed design and function and represents decisions and information available to the design team through September 29, 2017. It is a living document that will be modified to best meet the needs of Milwaukee Crime Lab throughout the development of the project.

Approach

Identify and provide raceway requirements, and coordinate SMS interdependencies, and equipment with **Client, Architect, Developer and General Contractor** hereafter referred to as the Design Team.

Coordinate the inter building cabling plan with **Client**, hereafter referred to as the Owner.

Coordinate final device placement with design team prior to rough-in.

Site work is not envisioned, with the following exception: raceway to support access control connectivity, gate arms in accordance with accessibility requirements and the placement of remote surveillance systems that shall be located on stand-alone poles, fencing or existing light stanchions.

Assist Design Team with SMS device location programming and coordination.

Coordinate and Provide SMS systems with civil, mechanical, E\electrical, structural, Reflected Ceiling Plan (RCP), telecommunications, signage and door hardware. Additionally, coordinate data/bandwidth/security layer needs with Owner's Information Technology (IT) department. Provide consulting and discuss and research industry trends with the Owner.

Assist Owner with selection of equipment for the Project and provide product demonstrations. The contractor shall supply commercially known equipment with part numbers that shall not be discontinued by the manufacturer within 12-months of the completion of the Project.

Coordinate development of security design documents with entire Project team.

Scope of Work

The scope of the project consists of the complete installation of a new SMS, inclusive of cabling, raceway, power supplies, interfaces, computer(s), equipment rack and other consumables/labor for a fully operational an integrated SMS platform. SMS shall be installed in accordance with the best practices of the trade, and related standards/codes, such as ADA SIA, TIA/EIA U.L, NFPA, NBFAA.

Coordination

Coordinate all components to be mounted in the rack(s), or on wall/ceiling in accordance with Owner/Architect requirements. Installation shall provide a neat appearance with accessibility for servicing equipment.

Coordinate locking hardware, gate operation, door unlocking, telecommunications, electrical, elevator and other related interfaces with the Design Team.

Perform complete SMS programming of the system in coordination with the Owner requirements inclusive of device/input naming, access levels, card enrollment and similar.

Data Coordination

The SMS for this Project shall include use of a shared structured building cabling system. This system will support voice and data applications using equipment supplied by the Owner. SMS bandwidth and security layers shall be coordinated with the Owner.

Warranty

Contractor shall provide a one-year warranty for all products, material and labor as it relates to the SMS equipment being installed. Warranty shall begin on Owner's written acceptance and will include three (3) preventative maintenance visits. Contractor at the conclusion of the warranty period shall update all SMS firmware, software and applicable licenses to the most current release.

Access Control and Alarm Monitoring System (ACMS)

Provide and connect security peripherals to Access Control Panels (ACP)'s for connection to the Owner's Access Control and Alarm Monitoring System (ACMS). The Contractor shall be responsible for the provision of all equipment, interfaces, cable and peripherals as well as direct/indirect labor or programming inclusive of database partitioning.

The ACMS shall be installed at all exterior doors, and select interior doors, as identified by the agency. It shall secure all interior doors to critical areas identified by the agency, including suite entrances and work areas, laboratory and storage areas, specialty rooms, and mechanical, electrical and telecom rooms.

ACMS shall be fully compatible with the existing card access system located in various State Office Buildings and will be controlled by the existing Owner's Capitol Police CCure 8000/9000 system. The System shall include proximity card readers, controllers, wiring, and all other equipment necessary for the complete specified operation with the existing CCure 8000/9000 System.

The ACMS shall utilize Software House iStar controllers and add-on boards as appropriate for the specific installation. Controllers shall be fully integrated with the existing Software House™ CCure8000/9000 system (integrate with current system being used by Capitol Police) and shall be of the latest design with the current version of firmware. Access cards shall be 35-bit proximity cards compatible with existing HID brand Corporate 1000 cards currently used by the Capitol Police; numbering shall be coordinated by the factory with the existing Capitol Police card database.

Access control readers shall be compatible with existing 125 kHz proximity access cards. Each reader shall be the model and size most appropriate for each individual door application.

All dry-contact closures shall be via an end-of-line supervision and the resistor shall be located at the panel. All ACP and related periphery equipment (power supplies, cabinets) shall be equipped with tamper switches.

The Contractor shall coordinate with the hollow metal frame contractor to determine the location for dust boxes in fire labeled doors. Under no circumstance may the Contractor modify a fire rated/ labeled door.

The ACMS shall be manufactured by Software House™ and shall be integrated with the Owner's Capitol Police department; substitutions shall not be permitted.

Door monitoring / Position

Door Monitoring / position switches shall be provided where determined in the design, and shall indicate the position of the associated door, either open, closed, held or forced open. The contractor shall provide end-of-line supervision, cable and direct/indirect programming as required for this functionality. Door monitoring / position devices shall be GE 1078C series or approved equal.

Motion Detection/Glass Break Detection

Supply motion detection within common areas as well as secure areas for the purposes of ascertaining an intrusion. Motion detection equipment shall be dual technology type, employing Passive Infra-Red (PIR) and microwave technology to minimize false alarms. The motion detection/glass break peripherals shall route back to Capitol Police via the ACMS/ACP. Provide this equipment in all areas identified by the agency.

Request-to-Exit

Request to-exit devices shall be provided by the door hardware supplier and shall be integrated into the hardware via integral micro-switches. The contractor shall provide, cable and programming as required for functionality of the system (door contact shunt, electrified lock release). In some instances, the contractor may need to provide a request-to-exit motion device at specific doors, to signal the access control alarm panel which shall shunt the door position switches and energize or de-energize electrified hardware associated to the access controlled door. Request to exit motion detectors shall be manufactured by Bosch/Kantech.

Request-to-Exit Button

Request-to Exit button(s) shall be provided as required by code and shall be wired to locally de-energize power and not through the ACP. Request-To-Exit Button(s) shall be Schlage Cat. No. 631-AL-EX or approved equal.

Door Release Button

Local switch for locking/unlocking door(s) shall be a DPDT toggle switch with an indicator LED and shall shunt the associated door position switch; location to be coordinated with Owner. Door release buttons shall be: Dortronics 5236 with optional DPDT toggle switch and optional LED or approved equal.

Duress Button(s)

Provide duress buttons as required by the Owner at areas that are identified as high-risk areas Local Alarm

Local alarm devices shall serve as an audible deterrent to staff and visitors to discourage unauthorized use of an "Emergency Only" exit door and will be reset locally by a key switch mounted in close proximity to the door or on the unit itself that is easily reachable (ADA accessible). Alarms will be rated at 82 decibels (dB) from a distance of three (3) feet and will be signaled via the door position switch from the associated door. Provide a key for bypass/reset of all local alarms, which shall be manufactured by Designed Security, or Owner approved equivalent.

Power Supplies

Furnish individually fused power supplies for electrified hardware as required. The Contractor shall be responsible for the provision and connection of 24 VAC power supplies and associated 12 AWG circuitry/cabling as required for operation of electric locking devices, which shall be wall mounted, key lockable and equipped with a tamper switch. Power supplies shall provide 125% of the electrical current requirements and shall be sized with a (4) four-hour backup battery for continued electrified lockset operation after a power failure. Power supplies shall be equipped with an off-board relay or manufacturer specified module to indicate when main power has dropped and shall have an integral relay for fire alarm/SLC connection. Fire interfaces, as required, to de-energize locking hardware shall be provided by the Contractor in accordance with NFPA code. Power supplies shall be Altronix, AlarmSaf, SDC or Owner approved equivalent.

Interfaces (Fire Relay/Door Operator)

The Contractor is responsible for providing interfaces to the following devices: Fire Alarm interfaces - door unlocking, door/vehicle gate operator activation (sliding/handicapped), Integral Request-To-Exit Micro-Switches (within Door Hardware) and Integration with surveillance and access control systems.

Interfaces (Third-party)

The Contractor is responsible for providing alarm interfaces to the following devices that include but are not limited to: Refrigeration (Fridge/freezers), fire alarm notification and building automation/alarm systems.

Credential(s)

The Contractor shall provide 250 Access control cards/fobs – type to be coordinate with Owner. Credential(s) shall be multi-technology type, capable of function with proximity (125KHz) access credentialing types. Credential readers to match section 28 13 00 provided by Capitol Police, and 28 10 00 by DFDM. Use biometric credential readers where identified by the agency.

Access Control Readers

Access control readers shall be provided as determined in the design (extended range, proximity, and keypad) and shall support a Wiegand output and shall be weatherized, where required. Mullion mounted readers shall not be allowed unless otherwise indicated. Access control readers shall be multi-technology type, capable of function with 125KHz proximity access credentials. Access control system shall secure all interior doors to critical areas identified by the Owner, including suite entrances and work areas, laboratory and storage areas, specialty rooms, and mechanical, electrical and telecom rooms.

Access Control Panels

ACP locations shall be centrally located within IDF/IT rooms. The Contractor shall provide the exact number of ACP(s) required and allow for an additional 25% capacity for future peripheral connections. ACPs shall incorporate provisions for uninterrupted standby battery power. Power supplies used shall be designed to send a signal to the ACMS in the event of a power loss, low battery, or short and shall maintain power for not less than eight (8) hours. ACP shall buffer a minimum of 500 events at the panel when communications with the host/server is interrupted and shall support locally, a minimum of 200 card holders per ACP. Access control panels shall be of the same manufacturers as the security system.

Panels shall be in the telecom closet only. An 8’x4’ wall space should be reserved for security equipment.

Access Control Workstation

Computer workstations, software and associated licenses/programming for the ACMS shall be provided as needed. Computer hardware shall be configured and specified by the manufacturer but shall require the following minimum requirements: 2.6 GHz multi core processor with 8GB of RAM. Operating System shall be Windows 10 based and have Four (4) USB 2.0 ports, 100MBPS Ethernet Network Interface Card, RAID Controller Single Channel to support Two (2) mirrored 500 GB Hard Drive(s), mouse, full function keyboard, audio sound cards and speakers, license agreement for all applicable software, Laser Report Text & Image Printer, Video Card with 4GB of memory and ability to support minimum of two (2) independent/simultaneous HDMI connections and one (1) 22” LCD monitor.

Access Control Server

Computer Servers, software and associated licenses for the ACMS shall be provided as needed. Computer hardware shall be configured and specified by the manufacturer but shall require the following minimum requirements: 4.0 GHz multi core processor with 8GB of RAM. Operating System shall be Windows 10 based and have Four (4) USB 2.0 ports, 100MBPS Ethernet Network Interface Card, RAID Controller Single Channel to support four (4) RAID Striped/ Mirrored TB Hard Drive(s), mouse, full function keyboard, audio sound cards and speakers, license agreement for all applicable software, Video Card with 4GB of memory and HDMI connection and one (1) 22" LCD monitor.

Access Control Software

The contractor shall provide all licensing and either directly program or sub-contracted programming with the Owner's approved Contractor to facilitate the functionality desired by the Owner.

Communication Systems

The Contractor shall provide an intercommunication/intercom system, which shall be used to authorize and remotely de-energize or energize associate specific locking hardware (doors) or gate operators. The Contractor shall supply a weatherized, vandal resistant system, which shall be TCP/IP and isolated from the Owner's network via fiber-optic cable. Intercoms shall communicate with a headend station and provide 2-way/duplex communication.

Surveillance System

Video surveillance system shall be a complete IP based system utilizing IP cameras, cabling, surge protection for outdoor cameras, and Network Video Recorder (NVR). All NVR equipment shall be installed in a securable rack within an IT room. Contractor shall furnish and install all aspects of the video surveillance system.

Cameras shall be provided as required by the agency, to cover exterior and interior areas, including exits, loading docks, lobbies facility perimeter, parking areas, sensitive interior areas, pedestrian and vehicle entrances and other identified areas.

The surveillance system shall utilize a shared telecommunications backbone infrastructure for connectivity

Network Video Recorder (NVR)

The Contractor shall provide a Network Video Recorder(s) (NVRS). All NVR's recording devices shall be capable of a minimum of fifteen (15) frames/Images per second, per camera and installed in accordance with DFDM spec section 28 23 00 – Video Surveillance System. Camera shall be provided as required by the Owner and shall be located to view select interior and exterior areas including lobbies, loading docks, facility perimeter, parking areas, pedestrian and vehicle entrances. This may require cameras to be mounted on light stanchions or fences as required.

All NVR equipment shall be installed in a securable rack within an IT room

Digital video recording equipment shall be included to record and store all video for a minimum of 30 days at the maximum quality of each camera at 15 frames/second, and also store all video for a minimum of 120 days at the maximum quality of each camera at 1 frame/second. Motion recording can be used for unique

circumstances, normally all cameras will be recorded 24 hours/day in “Free Run/continuous” mode with an image refresh, which shall not be less than every second.

All recorded video shall be stored on hard drive(s) to allow immediate access to viewing during this period and shall be First in, First Out (FIFO). The Contractor shall base the recorded storage for all cameras at a resolution of 2.1 Megapixel/1080p (1280 x 720). Additionally, beyond base storage, the Contractor shall allocate 25% additional storage for expansion beyond the initial camera quantity identified in the design. The storage unit shall be external to the processing unit and shall utilize SCSI or IDE hard drives in a RAID level 5/6 array.

All NVR workstation/server licensing is to include but is not limited to operating system, NVR software and camera licensing; all NVR workstation/server licensing shall be provided to the Owner. The surveillance system shall have the ability to be viewed remotely by Capitol Police.

The completed system will be set up it allow remote management of the cameras and server utilizing Remote Desktop Connection over the Owner networks.

Surveillance System shall be Manufactured by Exacq Vision and Shall be ExacqVision Pro; no substitutions shall be permitted.

Surveillance Workstation

Computer workstations and associated licenses for surveillance system shall be provided as needed. Computer workstations shall be configured and specified by the manufacturer but shall include the following minimum requirements: 3.6 GHz multi core processor with 8GB of RAM. Operating System shall be Windows 10 based and have Four (4) USB 2.0 ports, 100MBPS Ethernet Network Interface Card, RAID Controller Single Channel to support Two (2) mirrored 500 GB Hard Drive(s), mouse, full function keyboard, audio sound cards and speakers, license agreement for all applicable software, Laser Report Text & Image Printer, Video Card with 4GB of memory and ability to support minimum of two (2) independent HDMI connections and two (2) 22” LCD monitors and mounting hardware.

The NVR shall be capable of routing video to additional monitors. Camera to mouse/keyboard call up from external systems, salvo/zoned switching for surrounding camera views during an alarm event, which is communicated by the ACMS.

Provide variable speed control for pan/tilt cameras, as well as, integral speed domes, individual camera dwell times before sequence, auto hold, salvo/zone selection, keyboard lock, and running separate alarm call up patterns and monitor configurations (spot, multi-pane/multiplexed).

All fixed camera locations, shall be ceiling mounted, and field of views shall be approved by the Owner and Architect prior to installation. The Contractor shall assist the Owner in identifying the best field-of-view through field investigation and testing for each camera, prior to rough-in.

All of the cameras should utilize hard drive space requirement savings with technology equal to or better than Zipstream™. The cameras shall also have analytics built into the cameras such as Motion Detection and Tampering. ONVIF Compliance is required for all cameras. Cameras to be placed into dark, unlit areas should utilize intelligent or optimized infrared technology.

Cameras to be used in dimly lit outdoor areas should utilize Lightfinder™ technology.

Wherever possible, cameras should be equipped with WDR-Forensic capture.

Exterior operable cameras shall be roof mounted via parapet mounts, and isolated from the network via fiber-optic cabling. Roof camera penetrations shall be coordinated and made in accordance with the best practices of the trade.

Monitoring shall be provided on-site at locations required by the Owner.

Surveillance Server

Surveillance servers shall match servers used by Capitol Police.

Fixed camera

Weatherized and rated interior or exterior camera housings shall be provided where applicable. Cameras shall be of a solid-state design and shall incorporate an intensified, interline CCD, CMOS, direct transfer or progressive imaging chip with the following minimum pickup elements: (1280 (H) x 960 (V), and a minimum lighting for usable image of 1.0 LUX. The f-stop rating shall be 1.2/1.4 at 70% reflectance. All camera(s) shall have a minimum digital resolution capability of 1080P/ 2.1 megapixels. Fixed color cameras shall be manufactured by AXIS; substitutions shall not be permitted.

Operable cameras

Weatherized and rated interior or exterior camera housings shall be provided where applicable. Operable cameras shall be completely integral units, with exception to mounting hardware. The Contractor shall order operable cameras to meet anticipated environmental conditions. It is the Contractors responsibility to coordinate this work. Integral operable cameras shall be direct, via TCP/IP network connection, and shall not require additional control wiring. Maximum pre-positioning pan speeds shall be a minimum of 250 degrees/second and tilt speed minimum of 90 degrees/second. Accuracy for pre-position shall not exceed 10 degrees. Speed domes shall incorporate a minimum of a 16X (between 4mm-80mm maximum) optical and 5X digital zoom lens or interline CCD, CMOS, direct transfer or progressive imaging chip with the following minimum pickup elements: (1280 (H) x 960 (V), and a minimum lighting for usable image of 1.0 LUX. The f-stop rating shall be 1.2/1.4 at 70% reflectance. The unit shall have a minimum of sixty (60) auto preset positions with accuracy no greater than 10 degrees from the intended target. Operable cameras shall be IP cameras shall be fully compatible with the NVR system being specified. Camera shall pre-position after pre-determined, selectable time identified by the Owner. All camera(s) shall have a minimum digital resolution capability of 1080P/ 2.1 megapixels. Fixed color cameras shall be manufactured by AXIS; substitutions shall not be permitted. Operable color cameras shall be manufactured by AXIS; substitutions shall not be permitted, and model numbers shall be provided by Owner.

Outdoor Camera Cable Isolation

The Contractor will provide single mode/multi-mode fiber optic cabling and associated fiber optic transceivers for all exterior peripherals and shall be responsible for the connection to power being provided, as required, to support the video transceivers. Fiber optic transceivers shall be mounted within a key lockable enclosure within the building in an accessible location. Integral Speed dome video/control

fiber transmitters shall be used in conjunction with all exterior camera installations. Fiber optic transceivers, where required, shall transmit data, back to the security room. Video transceivers shall be IFS, Fiber Options, or Owner equivalent.

Cable

Coordinate system specific cabling with Owner. All SMS network cabling shall be installed by the Contractor and shall be Plenum and Category 6A; refer to telecommunications section for additional requirements.

Any SMS cable that exits the building shall be isolated via fiber optic cabling, unless otherwise directed in writing by the Owner.

Card access cabling shall be Wiegand, input/dry-contact closures shall be less than 18 AWG, and low voltage power cabling shall not be less than 12AWG.

Cable Raceways

The cable raceway system will consist of a combination of cable tray, J-hooks, conduit stubs, junction boxes, surface raceway, cable runway. D-rings shall only be used in the equipment rooms. Conduit shall be required in all areas below the finished ceiling or 10'-0" AFF. In other areas, conduit shall transition to plenum rated cable via J-hooks.

Cable Pathways

Cable pathways will be sized with a minimum of 50% spare capacity, or spare pathways will be provided to allow for future growth. Typical pathway sizing is as follows:

- Outdoor Inter-building - 100% spare capacity over initially installed cabling.
- Indoor Intra-building - Fill to 50% of maximum allowed by code.
- Security equipment stubs - 1" minimum conduit size.

Grounding System

SMS equipment shall be grounded. Refer to telecommunication section.

Innerduct

For each fiber connection, a minimum of two (2) fibers shall be pulled from each device and home run back to the security equipment room encapsulated in conduit and innerduct. Conduit shall be utilized as a raceway and shall be installed in accordance with the best practices of the trade including, but not limited to fill, innerduct, and conduit bend radiuses.

Fiber Optic Station Cabling and Connecting Hardware

Each fiber optic jack will connect to the nearest IDF with a 2-strand single/multimode fiber optic cable.

MEP Requirements

Head-end SMS equipment, inclusive of NVR storage arrays, servers shall be housed in conditioned environments within lockable equipment racks. All head-end equipment shall be backed up on battery power.

Electrical Requirements

Security equipment rack(s) shall be connected to the building standby power source. Rack-mounted UPS equipment will be used to maintain system operation while the standby power is initiated.

Uninterruptable Power Supply (UPS)

Provide standalone UPS systems including, but not limited to, rectifier/charger, battery, continuous duty PWM inverter, protective devices, static bypass transfer switch, integral maintenance isolation bypass switch and microprocessor controls as required to ensure continuity of electric power to the load without any interruption, upon failure of the normal power source. Protect connected loads from surges, spikes, lightning, and other power disturbances

Enclosure: Shall provide all the hardware necessary to mount stand-alone floor mounted enclosure.

Ventilation: Provide as required to ensure that the components operate within their thermal and environmental ratings.

Internal Connections: Provide all copper bussing and/or cables.

The UPS shall be sized to maintain the required minimum load of connected equipment plus a 25 percent expansion for 60 minutes.

Incorporates audible alarm to indicate change in site power and UPS status.

Automatic self-test provides early indication when battery replacement is required.

Incorporates hot-swappable batteries.

Includes a protection indicator light and master power switch.

Input: 120V/60 Hz. AC cord with NEMA5-15P straight-in plug connection. Re-settable circuit breaker.

SMS head-end equipment shall use a USB or other approved interface to permit the UPS to send a shut-down command to the Windows™/Linux™ based head-end equipment (server, storage, NVR), in the event of a power loss and before battery failure.

Network Electronics

Network electronics (network switches) shall be sized, furnished and installed by the Owner.

Access Hatches

Where required for accessibility in hard type ceilings, the Contractor shall coordinate access hatches with the Architect, prior to rough-in.

Station Cabling

Station Cable Application	Cable Type	Cable Quality
Server/Head-end and NVR's	Copper UTP	Category 6A
Interior Surveillance Cameras	Copper UTP	Category 6A

Station Cable Application	Cable Type	Cable Quality
Exterior Surveillance Cameras	Fiber-Optic	(Single/Multi-mode)
Intercom	Copper UTP	Category 6A

Table 1 - Station Cabling Summary

Data Station Cabling and Connecting Hardware

Each data jack will connect to the nearest IDF with a 4-pair UTP, Category 6A cable. All four pairs will terminate at the outlet and in the IDF.

Category 6A rated 8P8C type jacks will be used at the outlet locations and rack mounted patch panels will be used in the IDFs.

Cables shall be stubbed in a 1" minimum conduit and transition to plenum cable at a height of 10'-0" AFF or in areas below the finished ceiling to J-hooks and cable trays to the IDFs.

Patch Cables

Contractor to provide certified, pre-tested patch cords that shall be in conformance with the Owner's IT standards, which include but is not limited to category, cable color, termination, length, labeling and other requirements. Coordinate with Owner for exact requirements.

Patch cables will be provided to match the data outlet cable and termination hardware and match matching station cable impedance with patch cable impedance. Coordinate Patch Color requirements with Owner, if applicable.

Equipment Racks

All copper and fiber optic patch panels will be installed in 7-foot-high, standard TIA 19" equipment racks. Refer to telecommunications specification for additional information.

MEP Requirements

No piping or ductwork will pass over any equipment rack. Piping and ductwork used to provide services to these rooms will be coordinated with the anticipated Technology equipment layout within the rooms.

Electrical Requirements

	Electrical Circuit Type	Source	Circuit Quantity
Equipment Rack	120v non-switched, 20A, single-phase]	UPS	(2) per equipment rack
Equipment Room/Wall	120v non-switched, 20A, single-phase; hard-piped with pig-tails. Plug-in allowed only when	Normal	(1) per equipment rack

	coordinated within equipment enclosure.		
Encoders	120v non-switched, 20A, single-phase; hard-piped with pig-tails. Plug-in allowed only when coordinated within equipment enclosure.	Normal	(1) per device rack
Coordinate additional electrical requirements for workstations, fiber optic equipment			

Table 2 – Envisioned electrical requirements

Mockups

Build mockups for cabling, connectivity and device(s) as applicable to verify selections made under sample submittals, to demonstrate configuration, capacity and aesthetics and to set quality standards for fabrication and installation.

Emergency Power Backup shall be provided for external lighting

Exterior Doors and Windows:
Limit the number of building entry points to the fewest number practical. Provide electronic access control for employee entry doors without a guard post (incl. after-hours access) in conjunction with CCTV coverage. Secure emergency exit doors using an automatic door closer and exit hardware that are compliant with applicable life safety codes and standards. Secure perimeter doors with non-removable hinges and high-security mechanical or electronic locks. No operable windows within 16 ft. of the ground or any other access point. Prevent visual observation from the exterior into critical outer/exterior offices. Use delayed egress hardware at emergency exits from critical or sensitive areas, if fire code allows.

Design exterior windows in publicly accessible locations to resist forced entry. Minimum recommended standard is one (1) hour forced entry rating with Performance Level 3b glazing.

External Building Systems and Roof Access:
Install electronic access control and IDS with CCTV coverage to control and monitor access to critical areas to be determined during design. Provide IDS on perimeter entry and exit doors and ALL operable windows within 16 ft. of the ground or other access point. Secure utility, mechanical, electrical and telecom rooms, and access to interior space from the roof with electronic access control locks and IDS with CCTV coverage.

Provide uninterruptible emergency power to essential electronic security systems for a minimum of 4 hours.

Locate critical systems and areas at least 25 ft. away from loading docks, entrances, mailrooms, personnel and package screening locations and uncontrolled parking.
Protect non-window openings such as mechanical vents and exposed plenums to resist forcible entry.

Security Cameras:
Provide CCTV coverage of screening checkpoints, exits, loading docks, lobbies, facility perimeter, parking areas, sensitive interior areas, pedestrian and vehicle entrances and other potential access points. Recommended external CCTV capabilities are 1080p resolution in both visible and infrared spectrums. External cameras should be Pan-Tilt-Zoom (PTZ) unless there is a significant network of overlapping coverage. System shall have active CCTV monitoring and recording using time-lapse video and digital image storage. Secure alarm and physical access control panels, CCTV components, controllers and cabling against unauthorized access; security system should be installed with system line supervision. Secure handles, control mechanisms and service connections at onsite publicly accessible locations with tamper-proof locks or other devices.

Facility Security Control Center and Screening Area:
This facility, with its mix of visitors, apprehended subjects, confidential informants, government administrative staff, law enforcement officers and so on should have a dedicated Security Control Center with onsite security staff during 365/24/7. The Security Control Center should be equipped with a centralized, secure radio network for guard staff and the ability to communicate with emergency response personnel who may be dispatched to the facility.

The facility must have a screening area for all visitors and their property using X-ray and metal detectors. Equipment to be provided by Proposer.

Internal PA Communications System:
A building communication system (public address) shall be provided in order to transmit emergency information to facility. Critical areas should be covered with both CCTV and audio capabilities.

G. System Equipment Reliability, Generator Power, and Capacity Matrix

System	Component	Component Redundancy	Minimum Required Quantity and Approximate Estimated Capacity	Generator Power
Fuel Oil	Belly Tank	N	XX,000-gal tank	N/A
	Supply Pumps	2N	X GPM @ XXX psig	100%
Hot Water System	Boilers	N+1	4 @ 3,100 MBH	2 OPERATE
	Secondary Pumps	N+1	3 @ 475 GPM (end-suction)	1 OPERATE
	Primary Pumps	N+1	4 @ 320 GPM (end-suction)	2 OPERATE
Chilled Water	Variable Speed Packaged Water Cooled Centrifugal Chillers	N+.5 or two at 75%	2 @ 550 Tons	1 OPERATES AT 180 Kw

System	Component	Component Redundancy	Minimum Required Quantity and Approximate Estimated Capacity	Generator Power
	Variable Primary Pumps	N+1	3 @ 625 GPM (end-suction)	1 OPERATES
	Constant Volume Condenser Water Pumps	N+1	3 @ 1,650 GPM (horizontal split case)	1 OPERATES
Air Handling	Laboratory/Office Supply	70% N (100% lab spaces)	2 @ 75,000 cfm	1 OPERATES
	Office Return	N	30,500 cf,	No
Exhaust Air	Laboratory	N+1	4 @ 25,000 cfm	2 OPERATE
Exhaust Air	Chiller Room and	N	To Be Determined	100%
Exhaust Air	Non-Lab exhaust	N	To Be Determined	No
Terminal Cooling	Elevator Machine Room Cooling	N	1 @1,000 cfm	100%
Terminal Cooling	Mechanical Room F Room Cooling Units	N	MER and TR's – 2 Tons per room Server Room – 8.5 tons ilding Entrance Facility (BEF) – Ventilation via transfer air	100%
Building Automation System	N/A	N	-	100&
Domestic Hot Water	Water Heaters	70-75% N	To Be Determined	No
	Hot Water Return Pump	N	To Be Determined	No
Sump Pumps	Elevator Sump Pumps	N	50 GPM per Hoist-way	100%
Laboratory Waste System	Dilution System	N	To Be Determined	100%
Processed Waste	Oil/Water Separator	N	To Be Determined	100%
High Purity Water	RO Unit	N	To Be Determined	100%
	Storage Tank	N	To Be Determined	No
	Ultraviolet Light	N	To Be Determined	100%
Nitrogen	Local Generators	N+Cylinder Backup	To Be Determined	100%

System	Component	Component Redundancy	Minimum Required Quantity and Approximate Estimated Capacity	Generator Power
Hydrogen	Local Generators	N+Cylinder Backup	To Be Determined	100%
Laboratory Gases	Bottled Laboratory Gases	Y	To Be Determined	N/A
Laboratory Compressed Air	Laboratory Compressed Air Package	N+1	To Be Determined	100%
Electrical Service	Pad Mounted Utility Transformer	N	X000kVA	N/A
Electrical Generation	Diesel Generators	N	1 @ XXX kW	N/A
Fire Protection	Fire Pump (if needed)	N	100%	Y

- Emergency power requirements to be evaluated as design progresses.
- Redundancy N+1 refers to system requiring N operating components to meet 100% of load with one additional component provided. For example, if 3 equally sized boilers are required to meet the design heating load than 4 boilers are provided so that if one is out of service there are still sufficient boilers to meet the design heating load.
- Redundancy refers to system having reserve tank and vaporizer sized for a minimum of 24 hours supply per NFPA 99.
- Redundancy refers to system having an equal amount of gas cylinders on the reserve side of the manifold as the primary gas cylinder side.

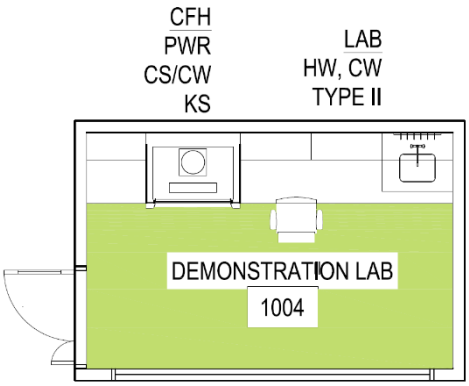
Appendix 3 – State Agency Tenant Program Requirements

The following room diagrams are examples of room layouts. Refer to Space description, square footage, comments, Appendices, and data sheets for additional requirements. Attached data sheets provide specialized and/or unique features, fixtures or construction required, and are not necessarily all-inclusive.

1. Crime Lab Administration, Support, and Information Technology

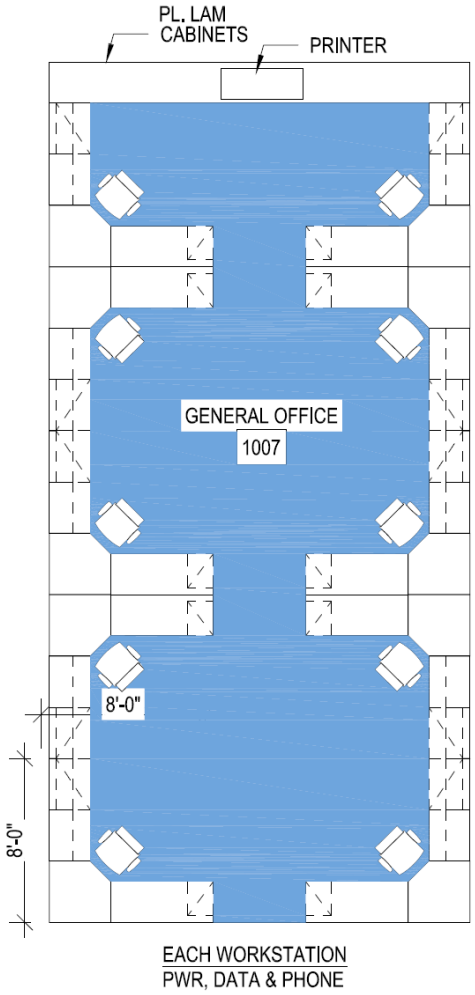
The Administrative, Support, and IT Technology area of the crime laboratory encompasses direct support to the management team and the technical forensic operations of the lab (correspondence, personnel, IT infrastructure and business applications support, procurement, fiscal, fleet, facilities) as well as functions related to receiving, handling, and distributing crime evidence related information for the lab.

3.1 Crime Lab Administration, Support, and Information Technology				
Area No.	Space Description	Square Footage Required	Staff Count	Comments
1001	Not used			
1002	Not used			
1003	Not used			
1004	Demonstration Lab	150	0	Visable to the lobby with full height glass
1005	Unisex Restroom	100	0	Single stall restroom within Controlled/Secured Area but centrally located and accessible to all lab sections.
1006	Unisex Restroom	100	0	Single stall restroom within Controlled/Secured Area but centrally located and accessible to all lab sections.
1007	General Office	1,150	8	Ten(10) 8' x 8' cubicles with 48" tall panels
1008	General Office Supervisor	120	1	Office at 120 S.F.
1009	General Office Case Files	500	0	High density case file storage to accommodate space cases for immediately accessible for quality assurance purposes.
1010	General Office Storage	0	0	Within Area 1011 Work/Copy/Mail/Storage
1011	Work/Copy/Storage/Mail Room	365	0	
1012	Not used			
1013	Evidence Sealing/Shipping Room	600	0	
1014	Evidence Receiving Entry/Waiting Area	450	0	Waiting area with intake counter. Adjacent to 1015-1.
1015-1	Evidence Receiving Room	800	0	One large, shared evidence receiving room with intake stations and work area. Adjacent to 1013, 1015-2, 1016 and 1017
1015-2	Confidential Evidence Receiving Room	180	0	
1016	Centralized Evidence Storage	1,700	0	Concrete block walls/ fortified ceilings
1017	Controlled Substances Evidence Storage Room	110	0	Concrete block walls/ fortified ceilings. Can be within 1016.
1018	Multi-Purpose Atrium/Common Meeting Area	1,500	0	Centrally located, open and accessible to all laboratory Sections.
1019	Quality Assurance Director	144	1	Office at 144 SF
1020	Laundry	125	0	
1021	Laboratory Bureau Director Office	144	1	Office at 144 SF
1022	Administrator Office	192	1	Office at 192 SF
1023	Forensic Science Program Chief	120	1	Office at 120 SF
1024	IT Server Room	0	0	Caged area within Building Componant Server Room.
1025	Lab Quality Manager Office	120	1	Office at 120 SF
1026	Law Enforcement Contact Office	120	1	Office at 120 SF
1027	Flammable Storage	110	0	
1028	Bulk Chemical Storage	100	0	
1029	Hazardous Waste Storage	110	0	
1030	Deputy Administrator Office	144	1	Office at 144 SF
1031	Library	300	0	Bookshelves and table for 6 to review documents.Within Controlled/Secured Area but centrally located and accessible to all lab sections.
	ASF Totals	9,554	16	



Room 1004
Demonstration Lab – 150 Square feet

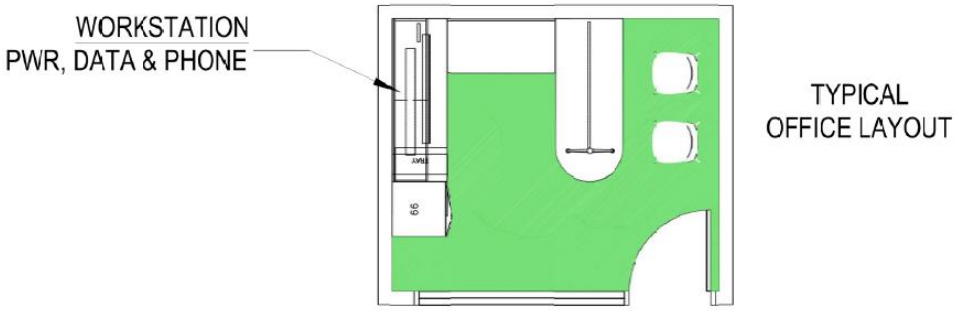
ROOM NAME:	DEMONSTRATION LAB		**BSL:**	2	
AREA NUMBER:	1004		**ISO CLASS:**	NONE	
DEPARTMENT:	CRIME LAB ADMINISTRATION, SUPPORT AND IT				
UNIT:	SUPPORT		**LAB TYPE:**	LAB	
ADJACENCIES:					
Department					
Area Number	2008 lobby				
UTILIZATION		**MECHANICAL**	See Bldg.Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV
Staff Count	0	Summer Min & Max		Quantity	1
ARCHITECTURAL		Winter Min & Max		Size	4'-0"
Floor Material	SHEET	Occupied Humidity		Sash height	18"
Base	RWB	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	NONE
Height	10'-0"	Winter Min & Max		Cup sink / Water	NONE
Door Type	LAB	Un-Occupied Humidity		Storage Below	KS
Vision Panel	YES	Summer Min & Max		Electrical	YES
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	0
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	TBD
Material	METAL	Directional	POSITIVE	Airflow	TBD
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	TBD
Storage		Filtration MERV		Static Pressure	TBD
Base Cabinets	YES	Supply	14	Piped Services	NONE
Wall Cabinets	YES	Exhaust	N/A	Electrical	NONE
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	N/A
Glassware Storage	YES	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	18" x 14"x 12"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	YES
Services	CW, HW	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	YES
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	TYPE 2	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	YES	**SECURITY**		Timer Control	NONE
Waste	ACID	Door Access Control (Type)	CARD	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	1 PER 4 LF BENCH	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagi	YES	Equipment	YES



Room 1007

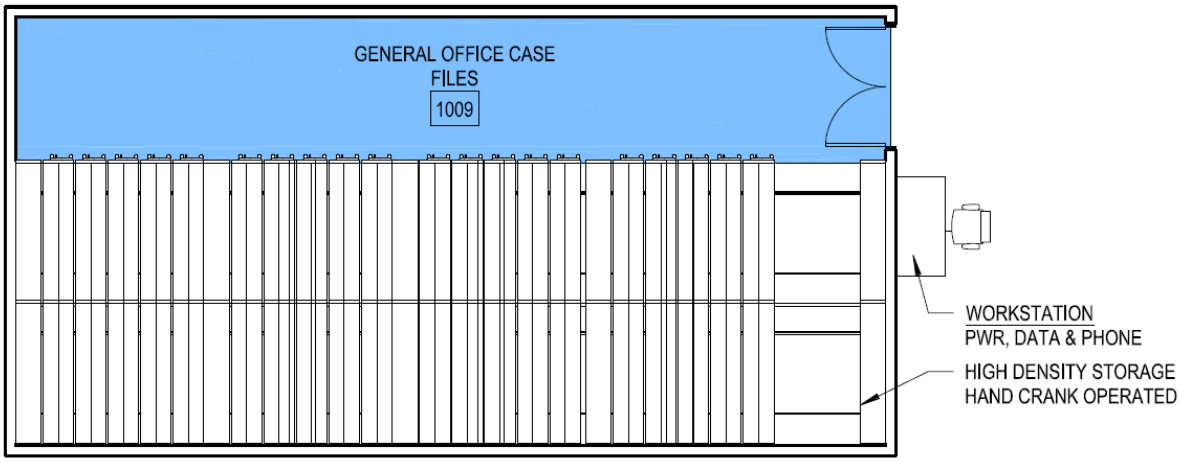
General Office

- Ten 8x8 Cubicles with 48” tall panels – see Appendix Two for cubicle requirements
- Plastic laminate cabinets along one wall for storage and printer



Room 1008
General Office Supervisor – 120 square feet
(Typical Private Office-Refer to Appendix 2 for additional requirements)

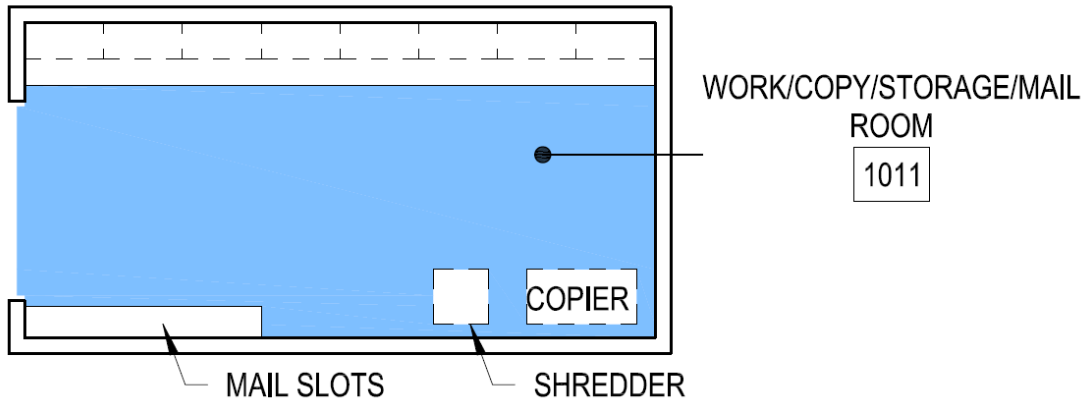
Typical for offices:
1019 Quality Assurance Director – 144 square feet
1021 Laboratory Bureau Director Office - 144 square feet
1023 Forensic Science Program Chief – 120 square feet
1025 Lab Quality Manager - 120 square feet
1026 Law Enforcement Contact – 120 square feet
1030 Deputy Administrator – 144 square feet



Room 1009
General Office Case Files

- Side Tab manual high density file storage system provided by Lessor in card access reader secured room.
- Workstation outside will have a scanner
- Carpeted
- Metal door
- Ability to dim lighting

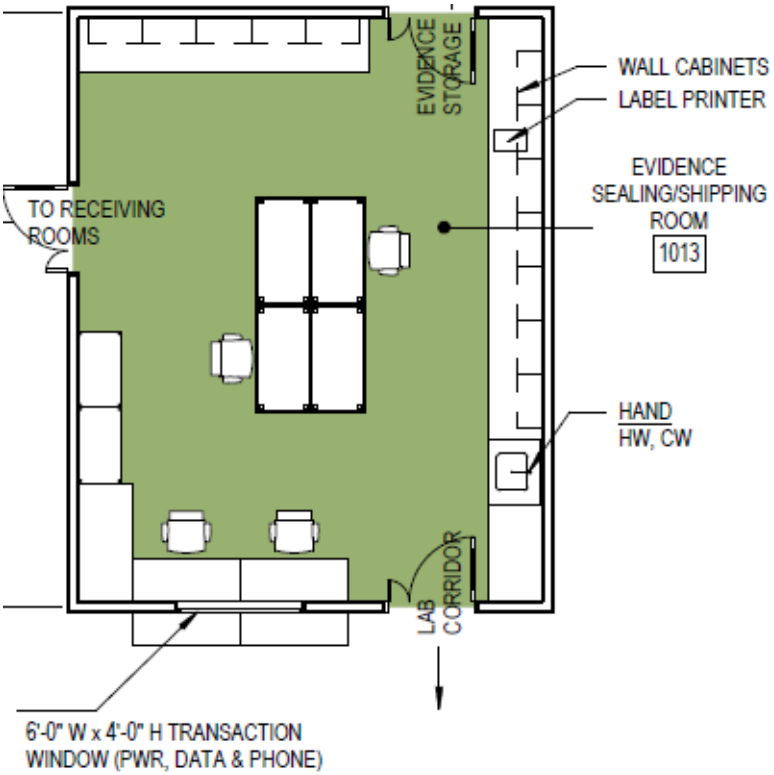
- Intrusion detection and video surveillance



Room 1011

Work/Copy/Storage/Mail Room

- Room and electrical for copier and high-powered shredder
- Plastic Laminate lower cabinets with shelving above on one wall
- Plastic laminate lower cabinets with built in mail slots above for approx. 100 employees
- Vinyl Flooring

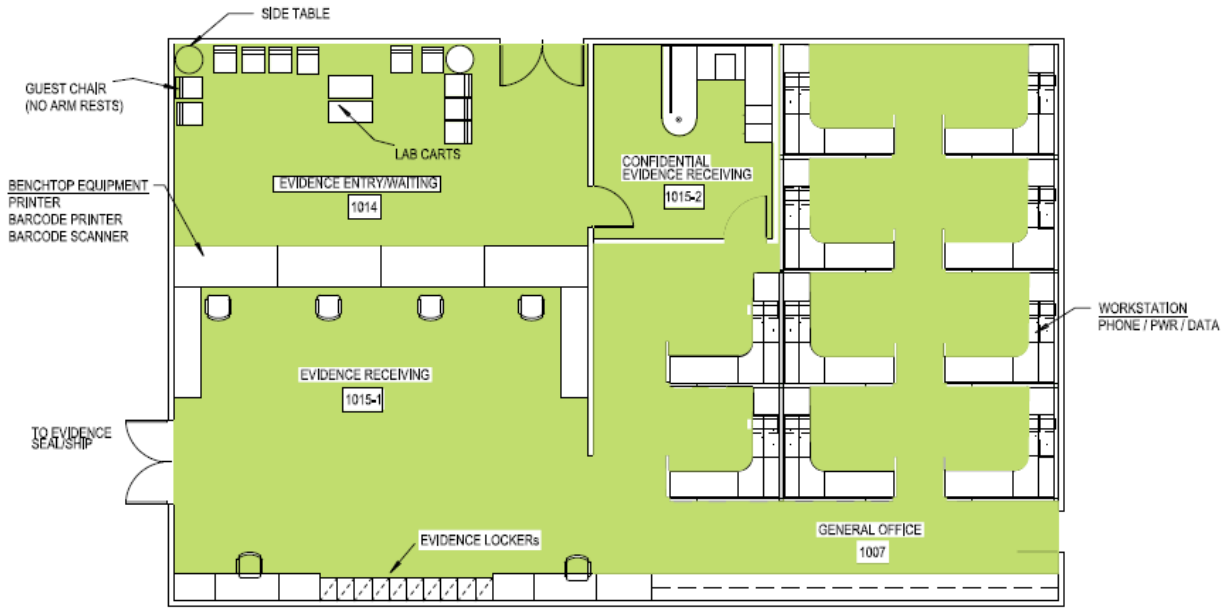


Room 1013

Evidence Sealing/Shipping Room

- Provide hands free faucets and all dispensers (soap, paper towel) and an eyewash station

ROOM NAME:	EVIDENCE SEALING / SHIPPING ROOM		**BSL:**	2	
AREA NUMBER:	1013		**ISO CLASS:**	NONE	
DEPARTMENT:	CRIME LAB ADMINISTRATION, SUPPORT AND				
UNIT:	EVIDENCE RECEIVING		**LAB TYPE:**	LAB SUPPORT	
ADJACENCIES:					
Department	CHEMISTRY, CRIMINALISTICS, DNA				
Area Number	1016				
UTILIZATION		**MECHANICAL**	See Bldg Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	4	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	SHEET	Occupied Humidity		Sash height	N/A
Base	RWB	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	YES	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/s	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	NEGATIVE	Airflow	N/A
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	YES	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	HAND	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	16" x 14" x 10"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	NONE
Services	HW, CW	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	30
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	NONE
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	SANITARY	Door Access Control (Type	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	(4) DATA	**MONITORING**	
		Wall Mounted Telephone	YES	Temperature/ Humidi	NONE
		Intercom System (PA) / Pag	YES	Equipment	NONE



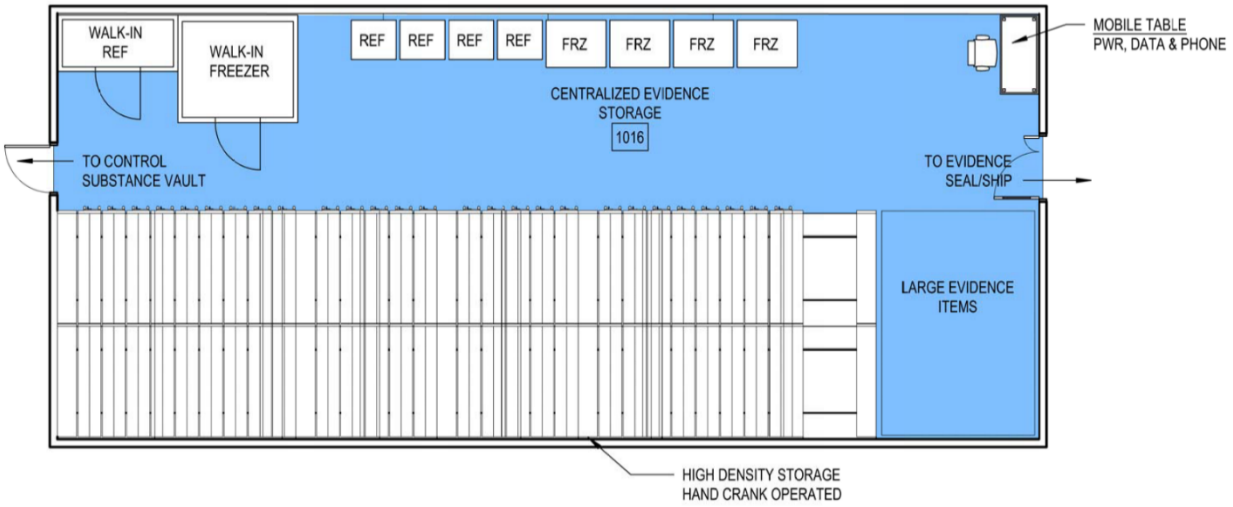
1014, 1015-1 and 1015-2

Evidence Receiving and Workstations

- Concrete block walls and fortified ceiling to 10'-0" AFF
- Card reader access
- Intrusion detection and video surveillance
- Separate venting system
- Laminate intake countertop with locked cabinets below.
- Evidence lockers and plastic laminate lower cabinets with shelves above
- Sheet Vinyl Flooring, rubber base, semi-gloss paint.

LIGHTING	
Type	LED
Foot-candle	50
Dimming / Multi-Leve	NONE
Zoning Control	NONE
Timer Control	NONE
Occupancy Sensor	YES
Daylighting Sensor	NONE
Task Lighting	NONE
FIRE PROTECTION	
System Type	WET
Smoke or Heat Detectors	SMOKE
MONITORING	
Temperature/ Humidi	YES
Equipment	YES

MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf	2
Pressure Control	
Directional	NEGATIVE
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh



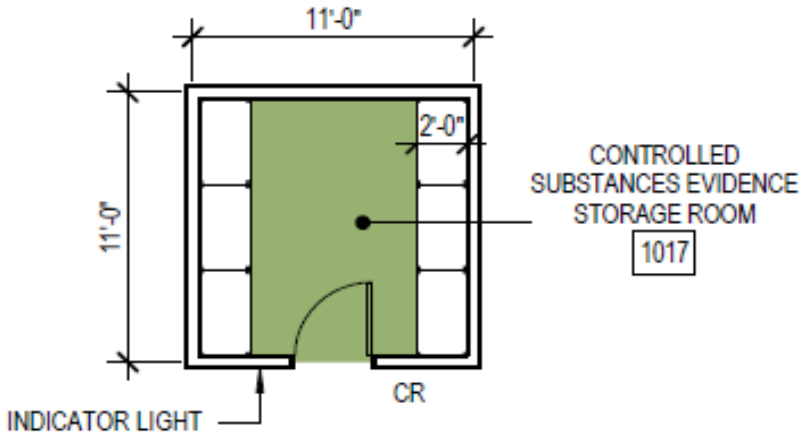
Room 1016

Centralized Evidence Storage

- Concrete block or fortified (reinforced fiber or mesh) walls and fortified ceiling at 10'-0" AFF
- Lessor provided manual high-density evidence storage system.
- Lab door type with card reader access
- Sheet vinyl flooring
- Mobile table to have epoxy worksurface
- Intrusion detection and video surveillance
- No plumbing or wet piping should run over this room.
- Power requirements for refrigerators and freezers is both 100V, 20 amps and 208V, 30 amp
- Fire Control: VESDA smoke detection and pre-action sprinklers

MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf	2
Pressure Control	
Directional	NEGATIVE
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh

LIGHTING	
Type	LED
Foot-candle	50
Dimming / Multi-Leve	NONE
Zoning Control	NONE
Timer Control	NONE
Occupancy Sensor	YES
Daylighting Sensor	NONE
Task Lighting	NONE
FIRE PROTECTION	
System Type	PRE ACTION
Smoke or Heat Detectors	VESDFA
MONITORING	
Temperature/ Humidi	YES
Equipment	YES



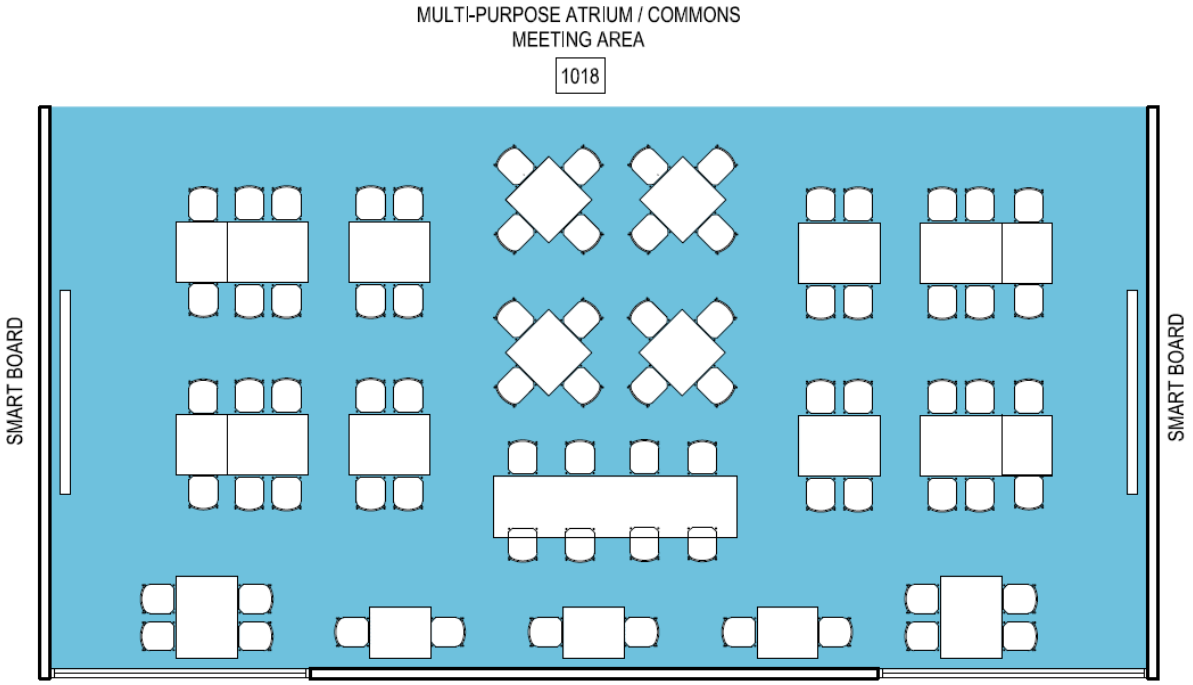
Room 1017

Controlled Substances Evidence Storage Room

- Concrete block walls and fortified ceiling to 10’-0” AFF
- Sheet vinyl Flooring
- 3’-0” wide steel door with welded hinges
- Rack shelving on two walls
- Card reader access
- Intrusion detection and video surveillance
- Indicator light on room exterior indicates if room lights are on
- Fire Control: VESDA smoke detection and pre-action sprinklers

MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	2
Pressure Control	
Directional	NEGATIVE
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	8
Un-Occupied	4

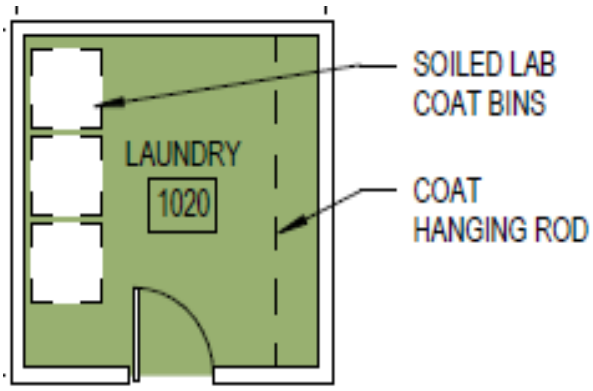
LIGHTING	
Type	LED
Foot-candle	30
Dimming / Multi-Leve	SW OUTSIDE RM
Zoning Control	NONE
Timer Control	NONE
Occupancy Sensor	YES
Daylighting Sensor	NONE
Task Lighting	NONE
FIRE PROTECTION	
System Type	WET
Smoke or Heat Detectors	SMOKE
MONITORING	
Temperature/ Humidi	YES
Equipment	NONE



Room 1018

Multi-Purpose Atrium/Commons Meeting Area

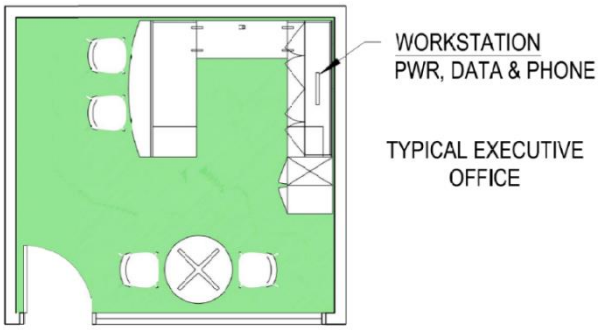
- In secured area but open and accessible to all labs.
- Bistro tables – room used for informal gatherings
- Kitchenette should be adjacent or included in the common meeting area.
- Room to have light dimming capability
- Area should incorporate open area, light, open stairwells and multi floor spaces to the extent possible.
- Provide blocking, electrical and cabling for large smart boards or TV monitors



Room 1020

Laundry

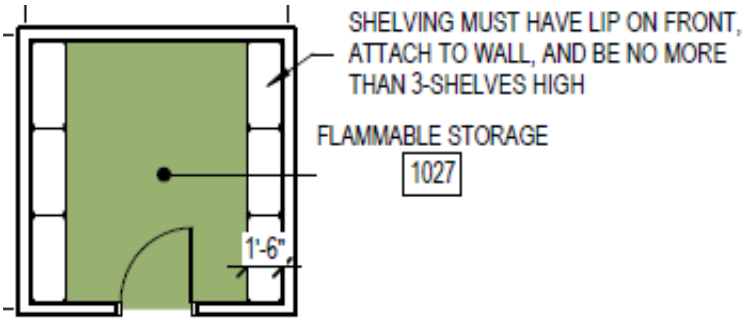
- Built in shelf and rod
- Sheet Vinyl Flooring
- Coat bins supplied by tenant



Room 1022

Administrators Office - 192 Square Feet

- Wood furniture
- Typical Executive Office-Refer to Appendix 2 for additional requirements

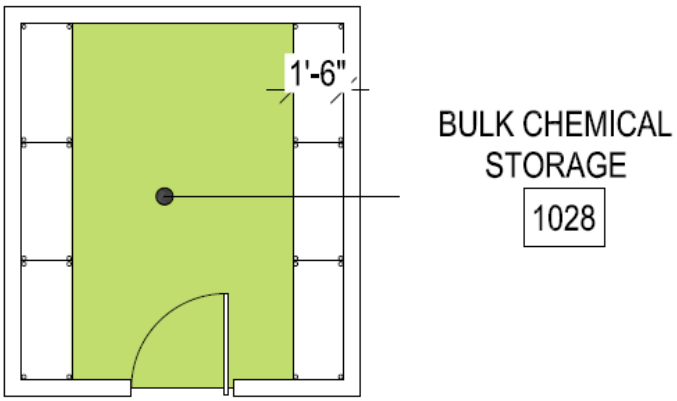


MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	2
Pressure Control	
Directional	NEGATIVE
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	6 ACH

Room 1027

Flammable Storage

- Epoxy Flooring with integral base
- Card reader access
- Rack Shelving
- Fire rated walls and doors, explosion proof light fixtures, 10’-0” AFF ceiling height
- Separate venting system
- Indicator light on room exterior indicates if room lights are on

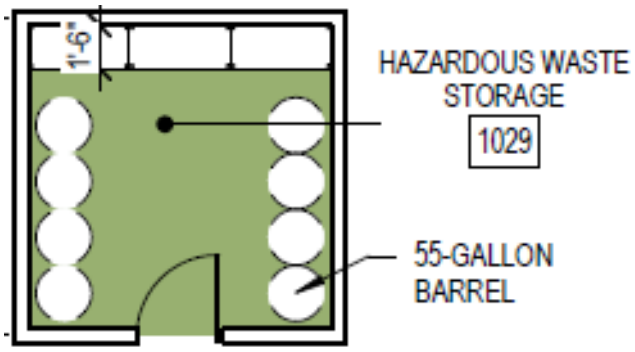


Room 1028

Bulk Chemical Storage

- Epoxy Flooring with integral base
- Card reader access
- Rack Shelving floor to ceiling
- Fire rated walls and doors, explosion proof light fixtures, 10’-0” A Ceiling ht.
- Separate venting system
- Indicator light on room exterior indicates if room lights are on

MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	2
Pressure Control	
Directional	NEGATIVE
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	6 ACH

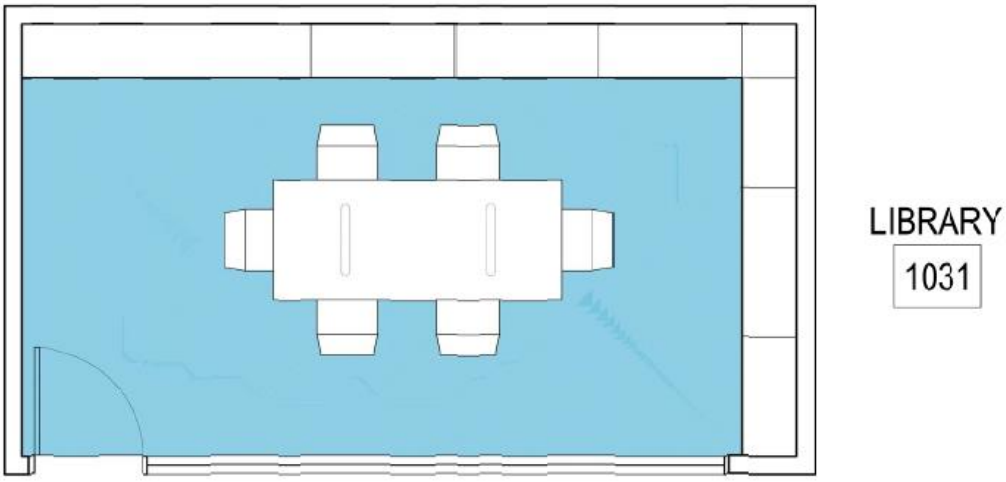


Room 1029

Hazardous Waste Storage

- Epoxy Flooring with integral base
- Card reader access
- Rack Shelving
- Fire rated walls and doors, explosion proof light fixtures, 10'-0" A Ceiling ht.
- Separate venting system
- Indicator light on room exterior indicates if room lights are on

MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	2
Pressure Control	
Directional	NEGATIVE
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	6 ACH



Room 1031

Library

- Room for 6 people in secure area but accessible to all labs, bookshelves on two walls.
- Typical conference room – refer to Appendix Two for requirements
- Room to have light dimming capability
- This room to have wood library shelving (non-typical)

2. Chemistry

The Chemistry Section is comprised of three units: 1) Controlled Substances Unit; 2) Toxicology Unit; and 3) Trace Evidence Unit. These three units use analytical instruments for the examination of evidence.

Controlled Substances Unit (CSU)

The Controlled Substances Unit analyses evidence submitted by law enforcement agencies to determine if there are any controlled substances present. The primary instruments used are the gas chromatograph with flame ionization detector (GC), the gas chromatograph with mass spectrometry detector (GCMS), and the Fourier Transform Infrared Spectrometer (FTIR). The Controlled Substances Unit may transition to Liquid Chromatography with dual Mass Spectrometry (LCMSMS) detectors.

Toxicology Unit (TXU)

The Toxicology Unit primarily analyzes biological samples for the presence of drugs. The Toxicology Unit primarily uses the GC and GCMS for the analyses they perform. The Toxicology Unit is currently transitioning many of its analyses to liquid chromatography dual mass spectrometry.

Trace Evidence Unit (TRU)

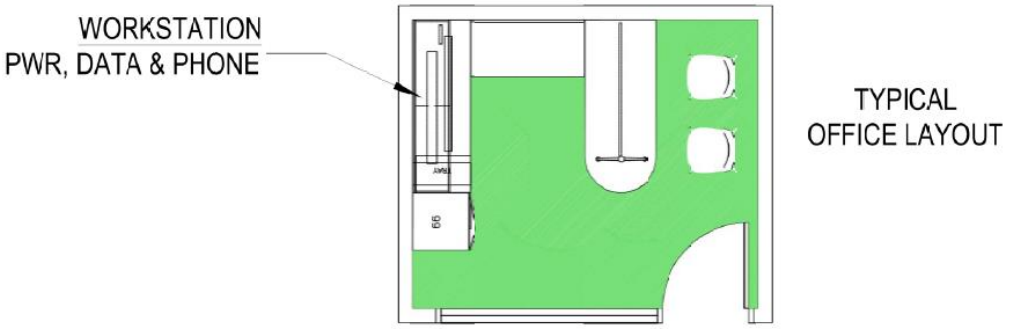
The Trace Evidence Unit analyzes a lot of different types of evidence including such things as glass, paint, fibers, tapes, adhesives, low explosives, fire debris, and others. The Trace Evidence Unit uses microscopy extensively but also uses GCMS, FTIR microscopy, Glass Refractive Index Measurement (GRIM), Scanning Electron Microscopy (SEM), Energy Dispersive X-Ray (EDX), and others.

Many of the instruments mentioned above need access to reagent grade compressed gasses in order to work properly. These gases include nitrogen, hydrogen, helium, and highly pure air (aka Zero Air). Not all the instruments use reagent gasses; those that do use reagent gasses do not necessarily need all four gasses. These gasses can be taken from compressed gas cylinders or they can be produced on site using gas generators.

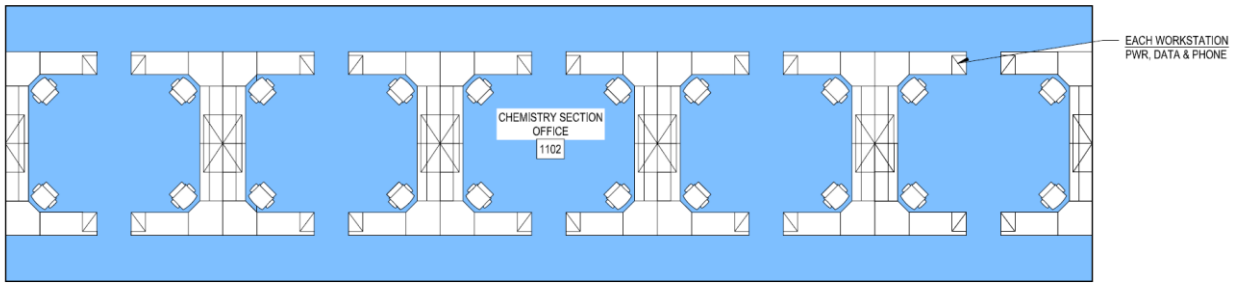
Because of the similarity of the instruments used in the three Units and the gases needed, it is efficient to have, with a few exceptions in the Trace Evidence Unit, all the instruments in a shared instrument lab which is near a gas control center which can either produce and/or distribute the gases to where they are needed.

3.2 Chemistry

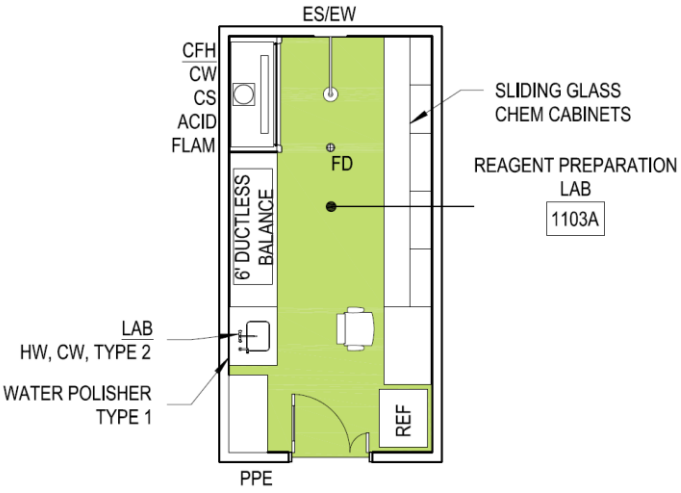
Area No.	Space Description	Square Footage Required	Staff Count	Comments
1101	Chemistry Supervisor Office	120	1	Office adjacent with easy access to 1102
1102	Chemistry Section Office	2,300	20	Twenty (20) 8x8 workstations. Adjacent with easy access to 1101,1104,1106,1107,1112
1103A	Reagent Preparation Lab	240	0	Adjacent with easy access to 1104, 1106, 1107, 1112
1103B	Glass Washing Lab	240	0	Adjacent with easy access to 1104, 1106, 1107, 1112
1104	CSU Sample Preparation Lab	4,000	0	Adjacent with easy access to 1102, 1103, 1105, 1112, 1113
1105	CSU Drug Storage Vault	120	0	Adjacent with easy access to 1104
1106	TXU Extraction Lab	2,400	0	Adjacent with easy access to 1102, 1103, 1112, 1113
1107	TRU Examination Lab	525	0	Adjacent with easy access to 1102, 1103, 1108, 1109, 1110, 1111, 1112, 1113
1108A	TRU Instrument Lab	475	0	Adjacent with easy access to 1107
1108B	TRU Instrument Closet	60	0	Adjacent with easy access to 1107
1109	TRU Microscope Lab	170	0	Adjacent with easy access to 1107
1110-1	TRU Evidence Sweeping Lab	350	0	Adjacent with easy access to 1107
1110-2	TRU Evidence Sweeping Lab	350	0	Adjacent with easy access to 1102, 1103, 1108, 1109, 1110, 1111, 1112, 1113
1110-3	TRU Evidence Sweeping Lab	350	0	Adjacent with easy access to 1102, 1103, 1108, 1109, 1110, 1111, 1112, 1113
1111	TRU Active Evidence Room	150	0	Adjacent with easy access to 1107
1112	Shared Instrument Room	2,950	0	Adjacent with easy access to 1102, 1103, 1104, 1106, 1107, 1113
1113	Compressed Gas Control Center	700	0	Adjacent with easy access to 1103, 1104, 1106, 1107, 1112. Easy access to the Loading Dock for gas cylinder deliveries.
1114	Not used	0	0	
1115	Fire Debris Lab	240	0	
	ASF Totals	**15,740**	**21**	



Room 1101
Chemistry Supervisor Office - 120 Square Feet
(Typical Private Office-Refer to Appendix 2 for additional requirements)



Room 1102
Chemistry Section Office – Twenty 8'x8' Workstations
(Typical open office area-see Appendix 2 for cubicle requirements)



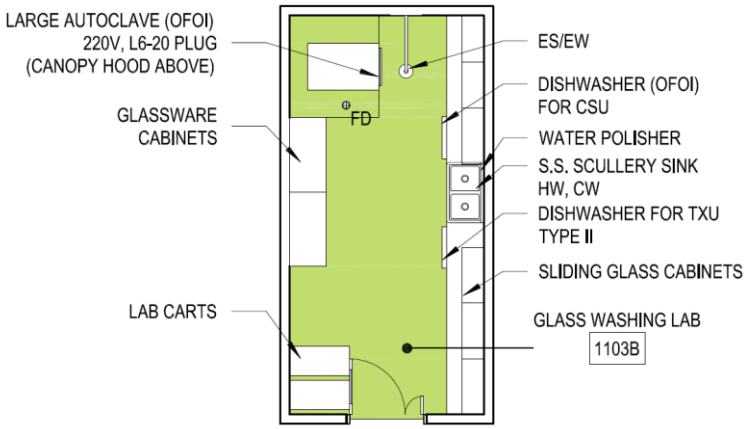
Room 1103A

Reagent Preparation Lab

- Card Reader will be required if in a restricted area

ROOM NAME:	REAGENT PREPARATION LAB	**BSL:**	2
AREA NUMBER:	1103A	**ISO CLASS:**	NONE
DEPARTMENT:	CHEMISTRY		
UNIT:	CHEMISTRY SUPPORT	**LAB TYPE:**	LAB SUPPORT
ADJACENCIES:			
Department	ADMIN		
Area Number	1104, 1106, 1107, 1112		

UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV
Staff Count	1	Summer Min & Max		Quantity	1
ARCHITECTURAL		Winter Min & Max		Size	6'-0"
Floor Material	EPOXY	Occupied Humidity		Sash height	18"
Base	INTEGRAL	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	NONE
Height	10'-0"	Winter Min & Max		Cup sink / Water	YES / CW
Door Type	LAB	Un-Occupied Humidity		Storage Below	ACID / FLAM
Vision Panel	YES	Summer Min & Max		Electrical	YES
Seals	N/A	Winter Min & Max		Recirculating Hood (Typ	NONE
Overhead Door	N/A	Light Power Density (watts	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watts	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	YES	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SLIDING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Ber	WALL	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	18" x 14"x 12"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator	YES
Services	CW, HW, TYPE 2	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	YES
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	YES	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Le	10% DIM
Pure Water Type	TYPE 1	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	YES	**SECURITY**		Timer Control	NONE
Waste	ACID	Door Access Control (Type	NONE	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NO	Smoke or Heat Detecto	HEAT
Other	NONE	Data / Telephone	2	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humi	NONE
		Intercom System (PA) / Pa	YES	Equipment	YES

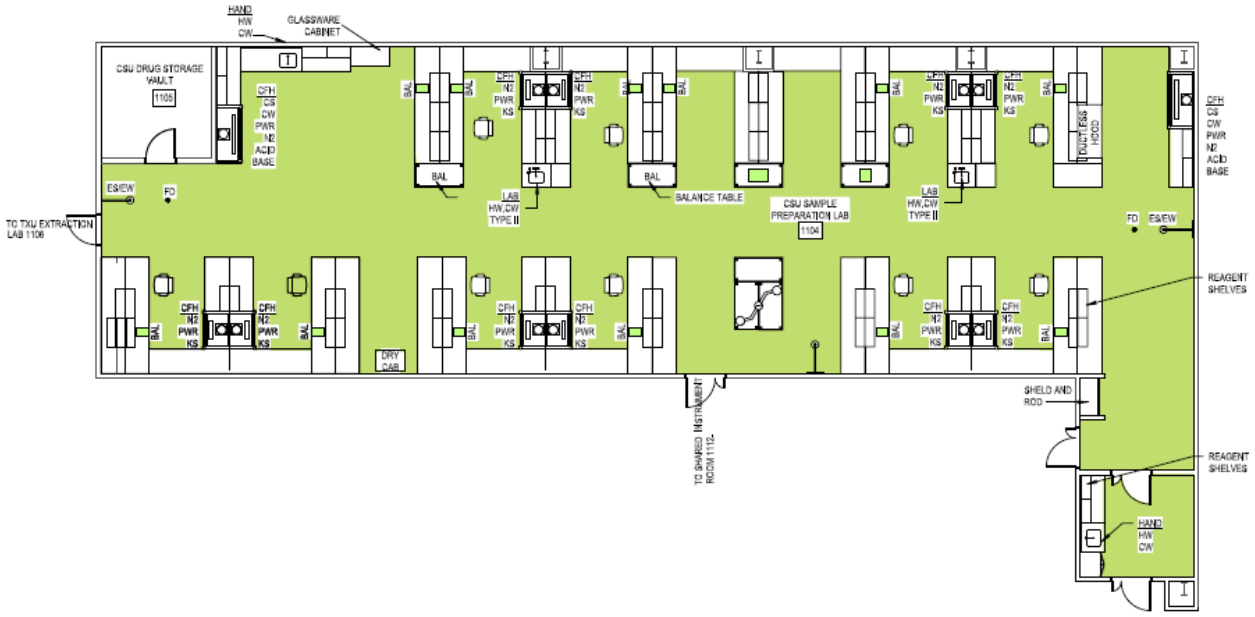


Room 1103B

Glass Washing Lab

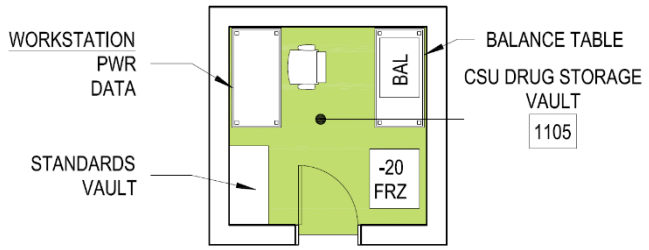
ROOM NAME:	GLASS WASHING LAB	**BSL:**	2
AREA NUMBER:	1103B	**ISO CLASS:**	NONE
DEPARTMENT:	CHEMISTRY		
UNIT:	CHEMISTRY SUPPORT	**LAB TYPE:**	LAB SUPPORT
ADJACENCIES:			
Department	ADMIN		
Area Number	1104, 1106, 1107, 1112		

UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A
Base	INTEGRAL	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	YES	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	12	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	YES	Air Recurc or Exhaust	Exh	Point Exhaust	CANOPY
Swinging or Sliding	SLIDING	EHS Min Air Changes		Quantity	1
Shelves Wall or Benc	NONE	Occupied	12 ACH	Size	TBD
Glassware Storage	YES	Un-Occupied	3 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	NONE
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	2
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	SCULLERY	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	TBD	Delta T	N/A	Special Outlet Config	L6-20R
Material	SS	Heated Process Water		Standby Pwr (Generator)	NONE
Services	HW /CW / TYPE 2	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	YES	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	30
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	NONE
Pure Water Type	TYPE 1	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	YES	**SECURITY**		Timer Control	NONE
Waste	ACID WASTE	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NO	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	2	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE



Room 1104
CSU Sample Preparation Lab

ROOM NAME:	CSU SAMPLE PREPARATION LAB		**BSL:**	2	
AREA NUMBER:	1104		**ISO CLASS:**	NONE	
DEPARTMENT:	CHEMISTRY				
UNIT:	CSU		**LAB TYPE:**	LAB	
ADJACENCIES:					
Department	ADMIN				
Area Number	1102, 1103, 1105, 1112, 1113				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV
Staff Count	10	Summer Min & Max		Quantity	6' (2) / 5' (11)
ARCHITECTURAL		Winter Min & Max		Size	6' (2) / 5' (11)
Floor Material	EPOXY	Occupied Humidity		Sash height	18"
Base	INTEGRAL	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	N2 (10)
Height	10'-0"	Winter Min & Max		Cup sink / Water	YES / CW (2)
Door Type	LAB	Un-Occupied Humidity		Storage Below	ACID / BASE
Vision Panel	YES	Summer Min & Max		Electrical	YES
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	1
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	10"
Glassware Storage	YES	Un-Occupied	4 ACH	Airflow	TBD
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	TBD
Bench top		Room Noise Level	N/A	Snorkel	YES
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	18" x 14" x 12"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	NONE
Services	CW, HW, TYPE 2	Flow	N/A	Conditioned Power	NONE
Sink Type	HAND	Pressure Rating	N/A	UPS	NONE
Size	16" x 14" x 10"	Static Pressure	N/A	Explosion Proof	NONE
Material	EPOXY	Supply Temp	N/A	GFCI Outlets	YES
Services	CW / HW	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	YES	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	ACID	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	YES	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NO	Smoke or Heat Detectors	HEAT
Other	N/A	Data / Telephone	YES	**MONITORING**	
		Wall Mounted Telephone	3	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE



Room 1105

CSU Drug Storage Vault

Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	CSU DRUG STORAGE VAULT		**BSL:**	2	
AREA NUMBER:	1105		**ISO CLASS:**	NONE	
DEPARTMENT:	CHEMISTRY				
UNIT:	CSU		**LAB TYPE:**	LAB SUPPORT	
ADJACENCIES:					
Department	ADMIN				
Area Number	1104				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A
Base	INTEGRAL	Summer Min & Max		Airflow	N/A
Partition Type	CMU	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	GWB	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	3' STEEL	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	NO	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	2	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	NONE	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	N/A	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	WALL	Occupied	6	Size	N/A
Glassware Storage	NONE	Un-Occupied	6	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	N/A	Delta T	N/A	Special Outlet Config	NONE
Material	N/A	Heated Process Water		Standby Pwr (Generator)	YES
Services	N/A	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	30
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	INDICATOR
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	YES	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	YES	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	2	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE

Room 1106

TXU Extraction Lab

Fire Control: VESDA smoke detection and pre-action sprinklers

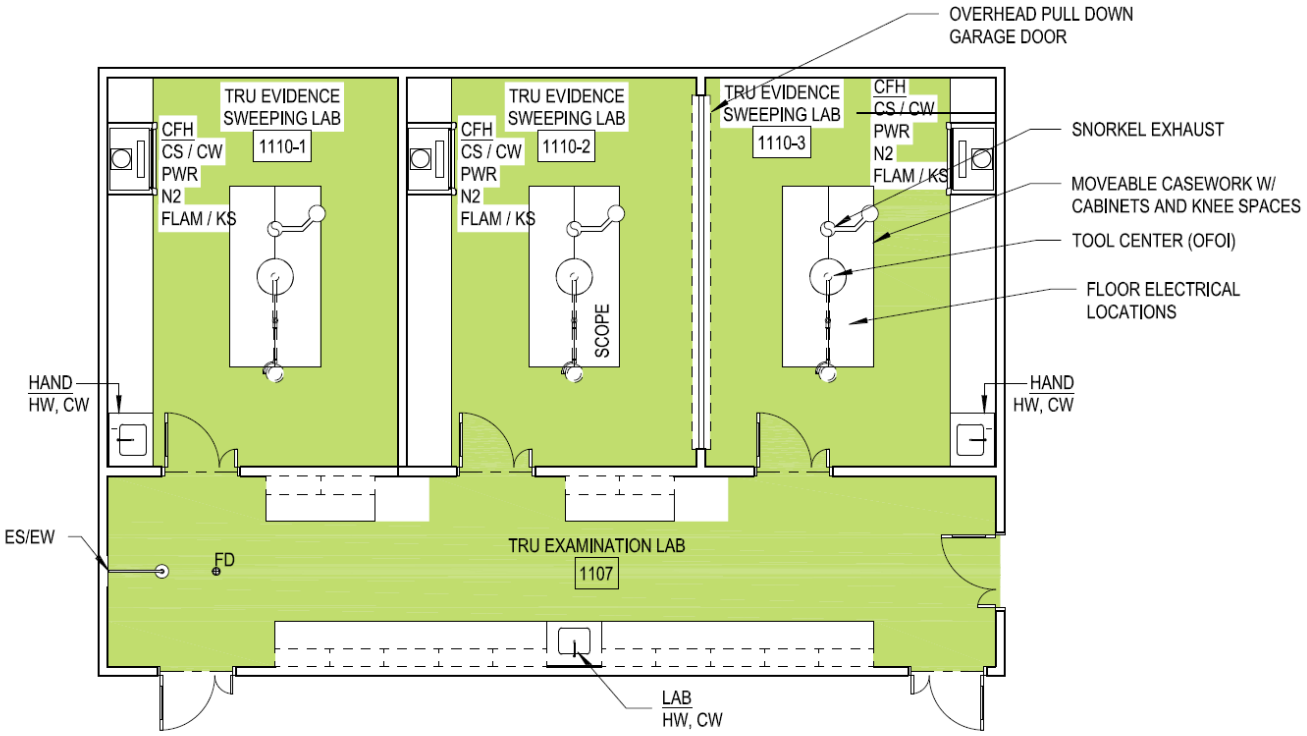
ROOM NAME:	TXU EXTRACTION LAB			**BSL:**	2		
AREA NUMBER:	1106			**ISO CLASS:**	NONE		
DEPARTMENT:	CHEMISTRY						
UNIT:	TXU			**LAB TYPE:**	LAB		
ADJACENCIES:							
Department	ADMIN						
Area Number	1102, 1103, 1112, 1113						
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria		**HOODS**		
Schedule of Use	12 HOURS	Occupied Temperature			Exhausted Hood (Type)	VAV	
Staff Count	9	Summer Min & Max			Quantity	4	
ARCHITECTURAL		Winter Min & Max			Size	5'	
Floor Material	EPOXY	Occupied Humidity			Sash height	18"	
Base	INTEGRAL	Summer Min & Max			Airflow	100 FPM	
Partition Type	GWB	Winter Min & Max			Face Velocity	80-120 FPM	
Paint	SEMI-GLOSS	Un-Occupied Temperature			Static Pressure	<0.1	
Ceiling Type	APC	Summer Min & Max			Piped Services	N2	
Height	10'-0"	Winter Min & Max			Cup sink / Water	YES / CW	
Door Type	LAB	Un-Occupied Humidity			Storage Below	FLAM/ACID/BASE	
Vision Panel	YES	Summer Min & Max			Electrical	YES	
Seals	N/A	Winter Min & Max			Recirculating Hood (Type)	BSC	
Overhead Door	N/A	Light Power Density (watt/sf)	1.4		Quantity	4	
Cased Opening	N/A	Equip Power Density (watt/sf)	6		Size	4' (2) / 6' (2)	
Casework		Pressure Control			Sash height	TBD	
Material	METAL	Directional	Negative		Airflow	TBD	
Fixed or Mobile	FIXED	Active	N/A		Face Velocity	TBD	
Storage		Filtration MERV			Static Pressure	TBD	
Base Cabinets	YES	Supply	14		Piped Services	NONE	
Wall Cabinets	YES	Exhaust	N/A		Electrical	NONE	
Glass Fronts	NONE	Air Recirc or Exhaust	Exh		Point Exhaust		
Swinging or Sliding	SWINGING	EHS Min Air Changes			Quantity	N/A	
Shelves Wall or Benc	BENCH	Occupied	6 ACH		Size	N/A	
Glassware Storage	YES	Un-Occupied	4 ACH		Airflow	N/A	
Rack Shelving	NONE	Vibration Sensitivity	N/A		Static Pressure	N/A	
Bench top		Room Noise Level	N/A		Snorkel	N/A	
Material	EPOXY	Process Chilled Water			**ELECTRICAL**		
Color	TBD	Flow	N/A		110V, 20A, 1 Phase	1 PER 2 LF BENCH	
Thickness	1"	Pressure Rating	N/A		208V, 30A, 1 Phase	NONE	
PLUMBING		Static Pressure	N/A		208V, 30A, 3 Phase	NONE	
Sink Type	LAB (2)	Supply Temp	N/A		480V, 100A, 3 Phase	NONE	
Size	18" x 14" x 12"	Delta T	N/A		Special Outlet Config	NONE	
Material	EPOXY	Heated Process Water			Standby Pwr (Generator)	YES	
Services	CW, HW, TYPE 2	Flow	N/A		Conditioned Power	NONE	
Sink Type	HAND (3)	Pressure Rating	N/A		UPS	NONE	
Size	16" x 14" x 10"	Static Pressure	N/A		Explosion Proof	NONE	
Material	EPOXY	Supply Temp	N/A		GFCI Outlets	YES	
Services	CW / HW	Delta T	N/A		Clocks	YES	
Safety		Process Steam Equipment			**LIGHTING**		
Emergency Shower	YES	Flow	N/A		Type	LED	
Eyewash	YES	Pressure	N/A		Foot-candle	100 (50+TASK)	
Floor Drain	YES	Condensate Return	N/A		Dimming / Multi-Leve	10% DIM	
Pure Water Type	TYPE 1	Max Backpressure	N/A		Zoning Control	NONE	
Local Polisher	YES	**SECURITY**			Timer Control	NONE	
Waste	ACID	Door Access Control (Type)	CR		Occupancy Sensor	YES	
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE		Daylighting Sensor	NONE	
Air	NONE	Video Surveillance	NONE		Task Lighting	YES	
Vacuum	NONE	Other	N/A		**FIRE PROTECTION**		
Nitrogen	N2	**COMMUNICATIONS**			System Type	WET	
Pure (Zero) Air	NONE	Audio/Video	NONE		Smoke or Heat Detectors	HEAT	
Other	NONE	Data / Telephone	YES		**MONITORING**		
		Wall Mounted Telephone	YES		Temperature/ Humidi	NONE	
		Intercom System (PA) / Pagir	YES		Equipment	NONE	

Room 1107

TRU Examination Lab

Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	TRU EXAMINATION LAB	**BSL:**	2		
AREA NUMBER:	1107	**ISO CLASS:**	NONE		
DEPARTMENT:	CHEMISTRY				
UNIT:	TRU	**LAB TYPE:**	LAB		
ADJACENCIES:					
Department	ADMIN				
Area Number	1102, 1103, 1108, 1109, 1110, 1111, 1112				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	3	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A
Base	INTEGRAL	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	YES	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	NONE	Delta T	N/A	Special Outlet Config	NONE
Material	NONE	Heated Process Water		Standby Pwr (Generator)	NONE
Services	NONE	Flow	N/A	Conditioned Power	NONE
Sink Type	LAB	Pressure Rating	N/A	UPS	NONE
Size	18" x 14"x 12"	Static Pressure	N/A	Explosion Proof	NONE
Material	EPOXY	Supply Temp	N/A	GFCI Outlets	YES
Services	CW, HW	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	ACID	Door Access Control (Type)	NONE	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	N2	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	YES	**MONITORING**	
		Wall Mounted Telephone	YES	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE

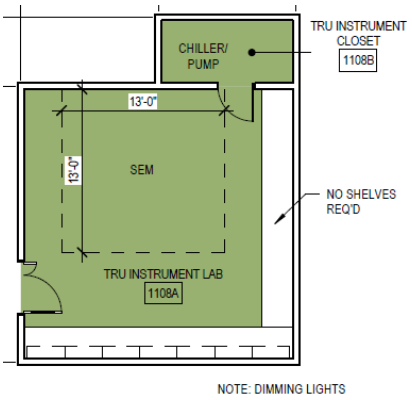

OVERHEAD PULL DOWN GARAGE DOOR
TRU EVIDENCE SWEEPING LAB
1110-1
CFH
CS / CW
PWR
N2
FLAM / KS
TRU EVIDENCE SWEEPING LAB
1110-2
CFH
CS / CW
PWR
N2
FLAM / KS
SCOPE
TRU EVIDENCE SWEEPING LAB
1110-3
CFH
CS / CW
PWR
N2
FLAM / KS
SNORKEL EXHAUST
MOVEABLE CASEWORK W/ CABINETS AND KNEE SPACES
TOOL CENTER (OFOI)
FLOOR ELECTRICAL LOCATIONS
HAND
HW, CW
HAND
HW, CW
ES/EW
FD
TRU EXAMINATION LAB
1107
LAB
HW, CW

Room 1110-1, 1110-2 and 1110-3

TRU Evidence Sweeping Labs

Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	TRU EVIDENCE SWEEPING LAB		**BSL:**	2	
AREA NUMBER:	1110-1, 1110-2, 1110-3		**ISO CLASS:**	NONE	
DEPARTMENT:	CHEMISTRY				
UNIT:	TRU		**LAB TYPE:**	LAB SUPPORT	
ADJACENCIES:					
Department	ADMIN				
Area Number	1107				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV
Staff Count	1	Summer Min & Max		Quantity	1
ARCHITECTURAL		Winter Min & Max		Size	4'-0"
Floor Material	EPOXY	Occupied Humidity		Sash height	18"
Base	INTEGRAL	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	N2
Height	10'-0"	Winter Min & Max		Cup sink / Water	YES / CW
Door Type	LAB	Un-Occupied Humidity		Storage Below	FLAM / KS
Vision Panel	NONE	Summer Min & Max		Electrical	YES
Seals	YES	Winter Min & Max		Recirculating Hood (Type	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	3
Shelves Wall or Benc	WALL	Occupied	6 ACH	Size	10"
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	TBD
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	TBD
Bench top		Room Noise Level	N/A	Snorkel	YES
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	HAND (2)	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	16"X14"X10"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	NONE
Services	CW, HW	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	2	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE

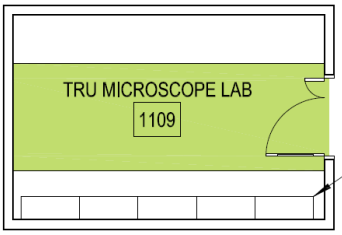


Room 1108A and 1108B

TRU Instrument Lab and Closet

Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	TRU INSTRUMENT LAB		**BSL:**	2	
AREA NUMBER:	1108		**ISO CLASS:**	NONE	
DEPARTMENT:	CHEMISTRY				
UNIT:	TRU		**LAB TYPE:**	LAB SUPPORT	
ADJACENCIES:					
Department	ADMIN				
Area Number	1107				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	2	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A
Base	INTEGRAL	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	NONE	Summer Min & Max		Electrical	N/A
Seals	YES	Winter Min & Max	30-50%	Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	10	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	N/A	Delta T	N/A	Special Outlet Config	L5-30R
Material	N/A	Heated Process Water		Standby Pwr (Generator)	YES
Services	N/A	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	YES
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	NONE	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	PREACTION
Pure (Zero) Air	NONE	Audio/Video	NO	Smoke or Heat Detectors	VESDA
Other	NONE	Data / Telephone	YES	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE



NOTE: DIMMING LIGHTS

Room 1109

TRU Microscope Lab

Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	TRU MICROSCOPE LAB			**BSL:**	2		
AREA NUMBER:	1109			**ISO CLASS:**	NONE		
DEPARTMENT:	CHEMISTRY						
UNIT:	TRU			**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:							
Department	ADMIN						
Area Number	1107						
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria		**HOODS**		
Schedule of Use	12 HOURS	Occupied Temperature			Exhausted Hood (Type)	NONE	
Staff Count	4	Summer Min & Max			Quantity	N/A	
ARCHITECTURAL		Winter Min & Max			Size	N/A	
Floor Material	EPOXY	Occupied Humidity			Sash height	N/A	
Base	INTEGRAL	Summer Min & Max			Airflow	N/A	
Partition Type	GWB	Winter Min & Max			Face Velocity	N/A	
Paint	SEMI-GLOSS	Un-Occupied Temperature			Static Pressure	N/A	
Ceiling Type	APC	Summer Min & Max			Piped Services	N/A	
Height	10'-0"	Winter Min & Max			Cup sink / Water	N/A	
Door Type	LAB	Un-Occupied Humidity			Storage Below	N/A	
Vision Panel	NONE	Summer Min & Max			Electrical	N/A	
Seals	YES	Winter Min & Max			Recirculating Hood (Type)	NONE	
Overhead Door	N/A	Light Power Density (watt/sf)	1.4		Quantity	N/A	
Cased Opening	N/A	Equip Power Density (watt/sf)	10		Size	N/A	
Casework		Pressure Control			Sash height	N/A	
Material	METAL	Directional	Negative		Airflow	N/A	
Fixed or Mobile	FIXED	Active	N/A		Face Velocity	N/A	
Storage		Filtration MERV			Static Pressure	N/A	
Base Cabinets	YES	Supply	14		Piped Services	N/A	
Wall Cabinets	NONE	Exhaust	N/A		Electrical	N/A	
Glass Fronts	N/A	Air Recirc or Exhaust	Exh		Point Exhaust		
Swinging or Sliding	N/A	EHS Min Air Changes			Quantity	N/A	
Shelves Wall	ONE SIDE	Occupied	6 ACH		Size	N/A	
Glassware Storage	NONE	Un-Occupied	4 ACH		Airflow	N/A	
Rack Shelving	NONE	Vibration Sensitivity	N/A		Static Pressure	N/A	
Bench top		Room Noise Level	N/A		Snorkel	N/A	
Material	EPOXY	Process Chilled Water			**ELECTRICAL**		
Color	TBD	Flow	N/A		110V, 20A, 1 Phase	1 PER 2 LF BENCH	
Thickness	1"	Pressure Rating	N/A		208V, 30A, 1 Phase	NONE	
PLUMBING		Static Pressure	N/A		208V, 30A, 3 Phase	NONE	
Sink Type	NONE	Supply Temp	N/A		480V, 100A, 3 Phase	NONE	
Size	N/A	Delta T	N/A		Special Outlet Config	NONE	
Material	N/A	Heated Process Water			Standby Pwr (Generator)	NONE	
Services	N/A	Flow	N/A		Conditioned Power	NONE	
Sink Type	NONE	Pressure Rating	N/A		UPS	NONE	
Size	N/A	Static Pressure	N/A		Explosion Proof	NONE	
Material	N/A	Supply Temp	N/A		GFCI Outlets	NONE	
Services	N/A	Delta T	N/A		Clocks	YES	
Safety		Process Steam Equipment			**LIGHTING**		
Emergency Shower	NONE	Flow	N/A		Type	LED	
Eyewash	NONE	Pressure	N/A		Foot-candle	30	
Floor Drain	NONE	Condensate Return	N/A		Dimming / Multi-Leve	10% DIM	
Pure Water Type	NONE	Max Backpressure	N/A		Zoning Control	NONE	
Local Polisher	NONE	**SECURITY**			Timer Control	NONE	
Waste	NONE	Door Access Control (Type)	NONE		Occupancy Sensor	YES	
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE		Daylighting Sensor	NONE	
Air	NONE	Video Surveillance	NONE		Task Lighting	YES	
Vacuum	NONE	Other	N/A		**FIRE PROTECTION**		
Nitrogen	NONE	**COMMUNICATIONS**			System Type	WET	
Pure (Zero) Air	NONE	Audio/Video	YES		Smoke or Heat Detectors	HEAT	
Other	NONE	Data / Telephone	YES		**MONITORING**		
		Wall Mounted Telephone	YES		Temperature/ Humidi	NONE	
		Intercom System (PA) / Pagir	YES		Equipment	NONE	

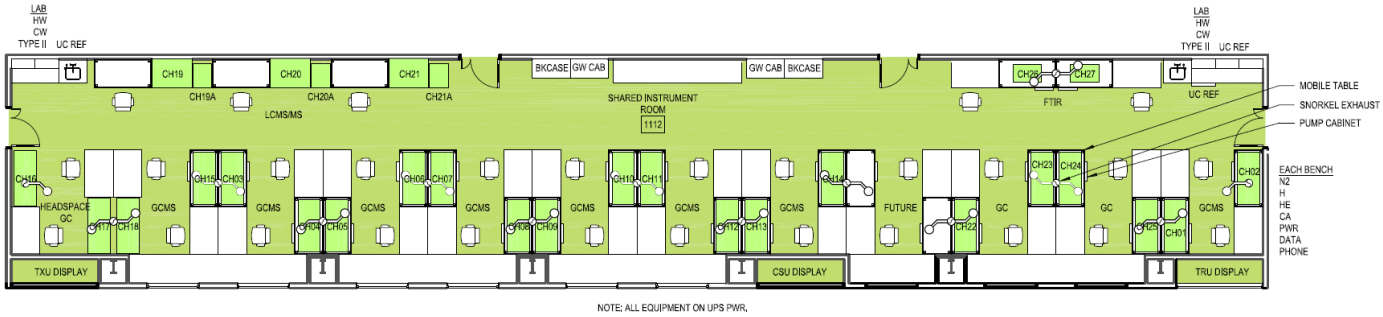

FRZ
LARGE ITEMS
2'-6"
TRU ACTIVE EVIDENCE
ROOM
1111

Room 1111

TRU Active Evidence Room

Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	TRU ACTIVE EVIDENCE ROOM	**BSL:**	2		
AREA NUMBER:	1111	**ISO CLASS:**	NONE		
DEPARTMENT:	CHEMISTRY				
UNIT:	TRU	**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:					
Department	ADMIN				
Area Number	1107				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A
Base	INTEGRAL	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	GWB	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	NONE	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	NONE	Directional	Negative	Airflow	N/A
Fixed or Mobile	N/A	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	NONE	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	NONE	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	YES	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	N/A	Process Chilled Water		**ELECTRICAL**	
Color	N/A	Flow	N/A	110V, 20A, 1 Phase	YES
Thickness	N/A	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	N/A	Delta T	N/A	Special Outlet Config	NONE
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE
Services	N/A	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	NONE
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	30
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	INDICATOR
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	YES	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	YES	Task Lighting	NONE
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	2	**MONITORING**	
		Wall Mounted Telephone	NONE	Temperature/ Humidi	YES
		Intercom System (PA) / Pagir	YES	Equipment	NONE

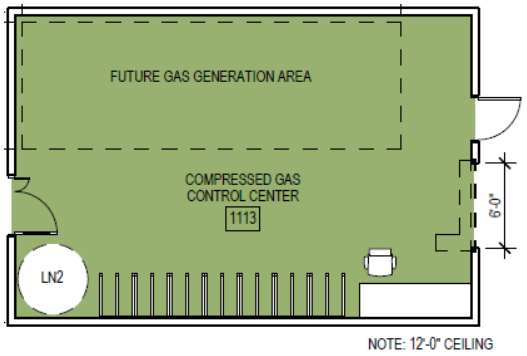


Room 1112

Shared Instrument Room

Fire Control: VESDA smoke detection and pre-action sprinklers

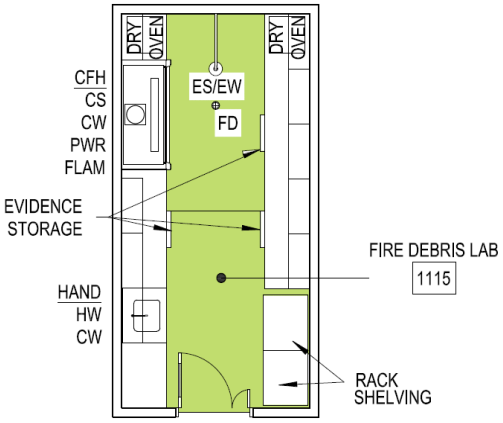
ROOM NAME:	SHARED INSTRUMENT ROOM			**BSL:**	2		
AREA NUMBER:	1112			**ISO CLASS:**	NONE		
DEPARTMENT:	CHEMISTRY						
UNIT:	CHEMISTRY SUPPORT			**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:							
Department	ADMIN						
Area Number	1102, 1103, 1104, 1106, 1107, 1113						
UTILIZATION			**MECHANICAL**	See Bldg. Sys. Criteria		**HOODS**	
Schedule of Use	12 HOURS		Occupied Temperature			Exhausted Hood (Type)	NONE
Staff Count	28		Summer Min & Max			Quantity	N/A
ARCHITECTURAL			Winter Min & Max			Size	N/A
Floor Material	EPOXY		Occupied Humidity			Sash height	N/A
Base	INTEGRAL		Summer Min & Max			Airflow	N/A
Partition Type	GWB		Winter Min & Max			Face Velocity	N/A
Paint	SEMI-GLOSS		Un-Occupied Temperature			Static Pressure	N/A
Ceiling Type	APC		Summer Min & Max			Piped Services	N/A
Height	10'-0"		Winter Min & Max			Cup sink / Water	N/A
Door Type	LAB		Un-Occupied Humidity			Storage Below	N/A
Vision Panel	YES		Summer Min & Max			Electrical	N/A
Seals	N/A		Winter Min & Max			Recirculating Hood (Type)	NONE
Overhead Door	N/A		Light Power Density (watt/sf)	1.4		Quantity	N/A
Cased Opening	N/A		Equip Power Density (watt/sf)	10		Size	N/A
Casework			Pressure Control			Sash height	N/A
Material	METAL		Directional	Negative		Airflow	N/A
Fixed or Mobile	FIXED / MOBILE		Active	N/A		Face Velocity	N/A
Storage			Filtration MERV			Static Pressure	N/A
Base Cabinets	YES		Supply	14		Piped Services	N/A
Wall Cabinets	YES		Exhaust	N/A		Electrical	N/A
Glass Fronts	NONE		Air Recirc or Exhaust	Exh		Point Exhaust	
Swinging or Sliding	SWINGING		EHS Min Air Changes			Quantity	28
Shelves Wall or Benc	NONE		Occupied	6 ACH		Size	10"
Glassware Storage	YES		Un-Occupied	4 ACH		Airflow	TBD
Rack Shelving	NONE		Vibration Sensitivity	N/A		Static Pressure	TBD
Bench top			Room Noise Level	N/A		Snorkel	26
Material	EPOXY		Process Chilled Water			**ELECTRICAL**	
Color	TBD		Flow	N/A		110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"		Pressure Rating	N/A		208V, 30A, 1 Phase	NONE
PLUMBING			Static Pressure	N/A		208V, 30A, 3 Phase	NONE
Sink Type	LAB		Supply Temp	N/A		480V, 100A, 3 Phase	NONE
Size	18" x 14"x 12"		Delta T	N/A		Special Outlet Config	NONE
Material	EPOXY		Heated Process Water			Standby Pwr (Generator)	YES
Services	CW / HW		Flow	N/A		Conditioned Power	NONE
Sink Type	NONE		Pressure Rating	N/A		UPS	YES
Size	N/A		Static Pressure	N/A		Explosion Proof	NONE
Material	N/A		Supply Temp	N/A		GFCI Outlets	YES
Services	N/A		Delta T	N/A		Clocks	YES
Safety			Process Steam Equipment			**LIGHTING**	
Emergency Shower	NONE		Flow	N/A		Type	LED
Eyewash	NONE		Pressure	N/A		Foot-candle	100 (50+TASK)
Floor Drain	NONE		Condensate Return	N/A		Dimming / Multi-Leve	10% DIM
Pure Water Type	NONE		Max Backpressure	N/A		Zoning Control	NONE
Local Polisher	NONE		**SECURITY**			Timer Control	NONE
Waste	SANITARY		Door Access Control (Type)	CR		Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)			Intrusion Detection	NONE		Daylighting Sensor	NONE
Air	YES (DRY)		Video Surveillance	NONE		Task Lighting	YES
Vacuum	NONE		Other	N/A		**FIRE PROTECTION**	
Nitrogen	YES		**COMMUNICATIONS**			System Type	PREACTION
Pure (Zero) Air	NONE		Audio/Video	NONE		Smoke or Heat Detectors	VESDA
Other	He, H		Data / Telephone	4 PER BENCH		**MONITORING**	
			Wall Mounted Telephone	3		Temperature/ Humidi	NONE
			Intercom System (PA) / Pagir	YES		Equipment	YES



Room 1113

Compressed Gas Control Center

ROOM NAME:	COMPRESSED GAS CONTROL CENTER				**BSL:**	2		
AREA NUMBER:	1113				**ISO CLASS:**	NONE		
DEPARTMENT:	CHEMISTRY							
UNIT:	CHEMISTRY SUPPORT				**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:								
Department	ADMIN, FACILITIES							
Area Number	1103, 1104, 1106, 1107, 1112							
UTILIZATION			**MECHANICAL**	See Bldg. Sys. Criteria		**HOODS**		
Schedule of Use	12 HOURS		Occupied Temperature			Exhausted Hood (Type)	NONE	
Staff Count	1		Summer Min & Max			Quantity	N/A	
ARCHITECTURAL			Winter Min & Max			Size	N/A	
Floor Material	CONCRETE		Occupied Humidity			Sash height	N/A	
Base	NONE		Summer Min & Max			Airflow	N/A	
Partition Type	CMU		Winter Min & Max			Face Velocity	N/A	
Paint	SEMI-GLOSS		Un-Occupied Temperature			Static Pressure	N/A	
Ceiling Type	APC		Summer Min & Max			Piped Services	N/A	
Height	12'-0"		Winter Min & Max			Cup sink / Water	N/A	
Door Type	LAB		Un-Occupied Humidity			Storage Below	N/A	
Vision Panel	NONE		Summer Min & Max			Electrical	N/A	
Seals	YES		Winter Min & Max			Recirculating Hood (Type)	NONE	
Overhead Door	YES		Light Power Density (watt/sf)	1.4		Quantity	N/A	
Cased Opening	N/A		Equip Power Density (watt/sf)	6		Size	N/A	
Casework			Pressure Control			Sash height	N/A	
Material	METAL		Directional	Negative		Airflow	N/A	
Fixed or Mobile	FIXED		Active	N/A		Face Velocity	N/A	
Storage			Filtration MERV			Static Pressure	N/A	
Base Cabinets	YES		Supply	14		Piped Services	N/A	
Wall Cabinets	YES		Exhaust	N/A		Electrical	N/A	
Glass Fronts	NONE		Air Recirc or Exhaust	Exh		Point Exhaust		
Swinging or Sliding	SWINGING		EHS Min Air Changes			Quantity	N/A	
Shelves Wall or Benc	NONE		Occupied	6 ACH		Size	N/A	
Glassware Storage	NONE		Un-Occupied	4 ACH		Airflow	N/A	
Rack Shelving	NONE		Vibration Sensitivity	N/A		Static Pressure	N/A	
Bench top			Room Noise Level	N/A		Snorkel	N/A	
Material	EPOXY		Process Chilled Water			**ELECTRICAL**		
Color	TBD		Flow	N/A		110V, 20A, 1 Phase	2	
Thickness	1"		Pressure Rating	N/A		208V, 30A, 1 Phase	NONE	
PLUMBING			Static Pressure	N/A		208V, 30A, 3 Phase	NONE	
Sink Type	NONE		Supply Temp	N/A		480V, 100A, 3 Phase	NONE	
Size	N/A		Delta T	N/A		Special Outlet Config	NONE	
Material	N/A		Heated Process Water			Standby Pwr (Generator)	NONE	
Services	N/A		Flow	N/A		Conditioned Power	NONE	
Sink Type	NONE		Pressure Rating	N/A		UPS	NONE	
Size	N/A		Static Pressure	N/A		Explosion Proof	NONE	
Material	N/A		Supply Temp	N/A		GFCI Outlets	NONE	
Services	N/A		Delta T	N/A		Clocks	YES	
Safety			Process Steam Equipment			**LIGHTING**		
Emergency Shower	NONE		Flow	N/A		Type	LED	
Eyewash	NONE		Pressure	N/A		Foot-candle	15	
Floor Drain	NONE		Condensate Return	N/A		Dimming / Multi-Leve	NONE	
Pure Water Type	NONE		Max Backpressure	N/A		Zoning Control	NONE	
Local Polisher	NONE		**SECURITY**			Timer Control	NONE	
Waste	NONE		Door Access Control (Type)	CR		Occupancy Sensor	YES	
Piped Services (Press/Qual/Vol)			Intrusion Detection	NONE		Daylighting Sensor	NONE	
Air	NONE		Video Surveillance	NONE		Task Lighting	YES	
Vacuum	NONE		Other	N/A		**FIRE PROTECTION**		
Nitrogen	NONE		**COMMUNICATIONS**			System Type	WET	
Pure (Zero) Air	NONE		Audio/Video	NONE		Smoke or Heat Detectors	N/A	
Other	NONE		Data / Telephone	2		**MONITORING**		
			Wall Mounted Telephone	1		Temperature/ Humidi	NONE	
			Intercom System (PA) / Pagir	YES		Equipment	NONE	



Room 1115

Fire Debris Lab

Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	FIRE DEBRIS			**BSL:**	2		
AREA NUMBER:	1115			**ISO CLASS:**	NONE		
DEPARTMENT:	CHEMISTRY						
UNIT:	CHEMISTRY SUPPORT			**LAB TYPE:**	LAB		
ADJACENCIES:							
Department	ADMIN						
Area Number	1107						
UTILIZATION			**MECHANICAL**	See Bldg. Sys. Criteria		**HOODS**	
Schedule of Use	12 HOURS		Occupied Temperature			Exhausted Hood (Type)	VAV
Staff Count	1		Summer Min & Max			Quantity	1
ARCHITECTURAL			Winter Min & Max			Size	8'-0"
Floor Material	EPOXY		Occupied Humidity			Sash height	18"
Base	INTEGRAL		Summer Min & Max			Airflow	100 FPM
Partition Type	GWB		Winter Min & Max			Face Velocity	80-120 FPM
Paint	SEMI-GLOSS		Un-Occupied Temperature			Static Pressure	<0.1
Ceiling Type	APC		Summer Min & Max			Piped Services	NONE
Height	10'-0"		Winter Min & Max			Cup sink / Water	YES / CW
Door Type	LAB		Un-Occupied Humidity			Storage Below	FLAM
Vision Panel	YES		Summer Min & Max			Electrical	YES
Seals	NONE		Winter Min & Max			Recirculating Hood (Type)	NONE
Overhead Door	N/A		Light Power Density (watt/sf)	1.4		Quantity	N/A
Cased Opening	N/A		Equip Power Density (watt/sf)	6		Size	N/A
Casework			Pressure Control			Sash height	N/A
Material	METAL		Directional	Negative		Airflow	N/A
Fixed or Mobile	FIXED		Active	N/A		Face Velocity	N/A
Storage			Filtration MERV			Static Pressure	N/A
Base Cabinets	YES		Supply	14		Piped Services	N/A
Wall Cabinets	YES		Exhaust	N/A		Electrical	N/A
Glass Fronts	ON WALL CAB		Air Recirc or Exhaust	Exh		Point Exhaust	
Sliding	WALL CAB		EHS Min Air Changes			Quantity	N/A
Swinging	BASE CAB		Occupied	6 ACH		Size	N/A
Glassware Storage	NONE		Un-Occupied	4 ACH		Airflow	N/A
Rack Shelving	YES		Vibration Sensitivity	N/A		Static Pressure	N/A
Bench top			Room Noise Level	N/A		Snorkel	N/A
Material	EPOXY		Process Chilled Water			**ELECTRICAL**	
Color	TBD		Flow	N/A		110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"		Pressure Rating	N/A		208V, 30A, 1 Phase	NONE
PLUMBING			Static Pressure	N/A		208V, 30A, 3 Phase	NONE
Sink Type	HAND		Supply Temp	N/A		480V, 100A, 3 Phase	NONE
Size	16" x 14" x 10"		Delta T	N/A		Special Outlet Config	5-30R
Material	EPOXY		Heated Process Water			Standby Pwr (Generator)	YES
Services	CW, HW		Flow	N/A		Conditioned Power	NONE
Sink Type	NONE		Pressure Rating	N/A		UPS	YES
Size	N/A		Static Pressure	N/A		Explosion Proof	NONE
Material	N/A		Supply Temp	N/A		GFCI Outlets	YES
Services	N/A		Delta T	N/A		Clocks	YES
Safety			Process Steam Equipment			**LIGHTING**	
Emergency Shower	YES		Flow	N/A		Type	LED
Eyewash	YES		Pressure	N/A		Foot-candle	100 (50+TASK)
Floor Drain	YES		Condensate Return	N/A		Dimming / Multi-Leve	10% DIM
Pure Water Type	N/A		Max Backpressure	N/A		Zoning Control	NONE
Local Polisher	N/A		**SECURITY**			Timer Control	NONE
Waste	SANITARY		Door Access Control (Type)	CR		Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)			Intrusion Detection	NONE		Daylighting Sensor	NONE
Air	NONE		Video Surveillance	NONE		Task Lighting	YES
Vacuum	NONE		Other	N/A		**FIRE PROTECTION**	
Nitrogen	NONE		**COMMUNICATIONS**			System Type	WET
Pure (Zero) Air	NONE		Audio/Video	NONE		Smoke or Heat Detectors	HEAT
Other	NONE		Data / Telephone	YES		**MONITORING**	
			Wall Mounted Telephone	1		Temperature/ Humidi	NONE
			Intercom System (PA) / Pagir	YES		Equipment	NONE

3. Criminalistics

The Criminalistics Section is composed of four units: 1) Firearms and Toolmark; 2) Identification; 3) Imaging; and 4) Crime Scene Response (see Appendix 3.5).

Firearms and Toolmark Unit

The Firearms and Toolmark Unit conducts examinations of firearms and firearms-related evidence such as fired cartridge cases and bullets submitted to the crime lab for analysis. In addition, firearms are inspected for functionality and are test fired within the secure firearms range. Examiners also perform serial number restorations, toolmark examinations and distance determinations. The Firearms and Toolmark Unit is also tasked with receiving, processing and mechanical destruction of firearms for the State of Wisconsin.

Identification Unit (Latent Print and Footwear)

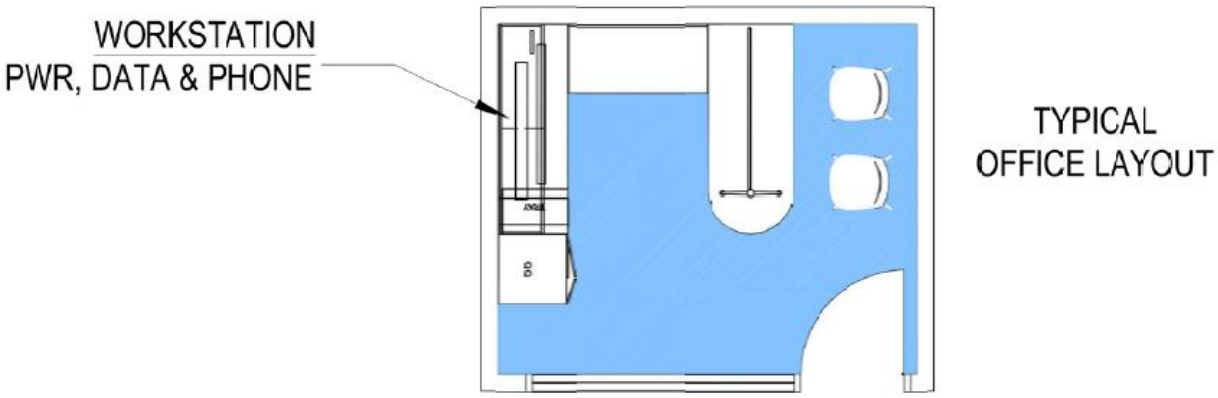
The Latent Print and Footwear Unit Analyzes evidence submitted by law enforcement agencies. The unit uses various physical and chemical processes to develop the friction ridge detail. The developed friction ridge detail is documented using photography, oftentimes with help from the Imaging Unit. The friction ridge detail that is developed or submitted, in the form of lifts, is analyzed and compared to known standards. Automated databases such as AFIS and NGI are also utilized to find known standards for comparisons. In addition, the unit analyzes footwear impressions submitted by law enforcement and compares these to impressions to known footwear standards.

Imaging Unit

The Imaging Unit provides Photographic and Video Imaging services to law enforcement agencies and other officials involved in the criminal justice system. Items of physical evidence can be digitally recorded, thus maintaining a true and accurate record. The unit utilizes specialized lighting techniques, high-resolution imaging equipment, and computer applications to record and recover information that is often not visible to the human eye. The unit will examine and enhance images and videos, recovering details from a variety of submission types. In addition, the unit analyzes, duplicates, produces and enhances images from various forms of media, VHS tapes, film, DVD recordings and many other image capturing devices. Specialized equipment is used for Ultraviolet and Infrared Photography. The Imaging Unit provides support for all disciplines in the crime laboratory.

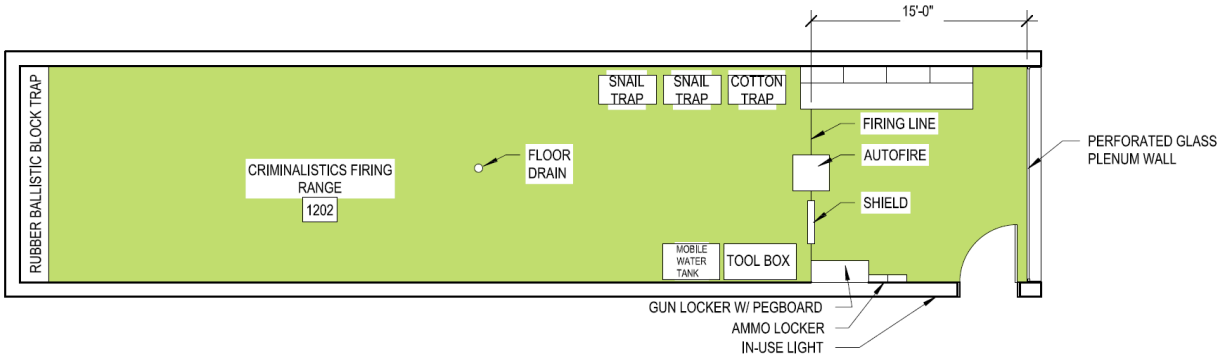
3.3 Criminalistics

Area No.	Space Description	Square Footage Required	Staff Count	Comments
1201	Criminalistics Supervisors Office	120	1	Office at 120 SF
1202	Criminalistics Firing Range	1,050	0	15' x 70' shooting range
1203	Criminalistics Firearms Vault	1,100	0	High density, movable gun storage. Construct to ASTM Standards
1204	Criminalistics Firearms Lab	2,300	0	
1205	Gun Shredder Area	340	0	Enough area for two (2) people with shredder
1206	Criminalistics Identification Office	1,100	8	Eight (8) cubicles each at 80 SF
1207	Criminalistics AFIS Office	175	0	One (1) NGI station at 40 SF. Three (3) AFIS stations (2'-6"x5'). Millwork stations
1208A	Imaging Photo Room	475	2	
1208B-1	Imaging Studio	350	0	
1208B-2	Imaging Studio	350	0	
1209	Criminalistics Evidence Holding	225	0	Located next to Imaging Studio (1208) and Identification Lab (1211)
1210	Digital Imaging Room and Imaging Offices	0	0	Two (2) cubicles each at 80 SF. Included in 1208
1211	Criminalistics Identification Lab	2,500	0	Adjacent to Identification Office (1206), and AFIS (1207). Laser Rooms (1212 and 1213)can be within this room. Eight (8) 5' x 8' x 2.5'H workbenches
1212	Laser Room 1	170	0	
1213	Laser Room 2	170	0	
1214A	Vehicle Processing	575		Six(6) bays, Two (2) 2 post lifts, (1) 4 post lift (1 to be ramp type). Divide each bay with chain-link fence or alternative divider (see http://criterionproducts.com for general information). Space used by all Units as needed. Adjacent to 1403 Screening Room.
1214B	Vehicle Processing Bay	1,800	0	
1214C	Vehicle Processing Bay	2,650	0	
1215	Bullet Recovery	0	0	Within Gun Range
1216	Ammunition Storage	230	0	
1217	Firearms Evidence Vault	120	0	
1218	Serial Number Restoration / Distance Determination	365	0	
1219	Criminalistics Firearms Office	690	8	Eight (8) 8x8 Workstations
	ASF Totals	16,855	19	



Room 1201

Criminalistics Supervisors Office- 120 Square Feet
(Typical Private Office-Refer to Appendix 2 for additional requirements)

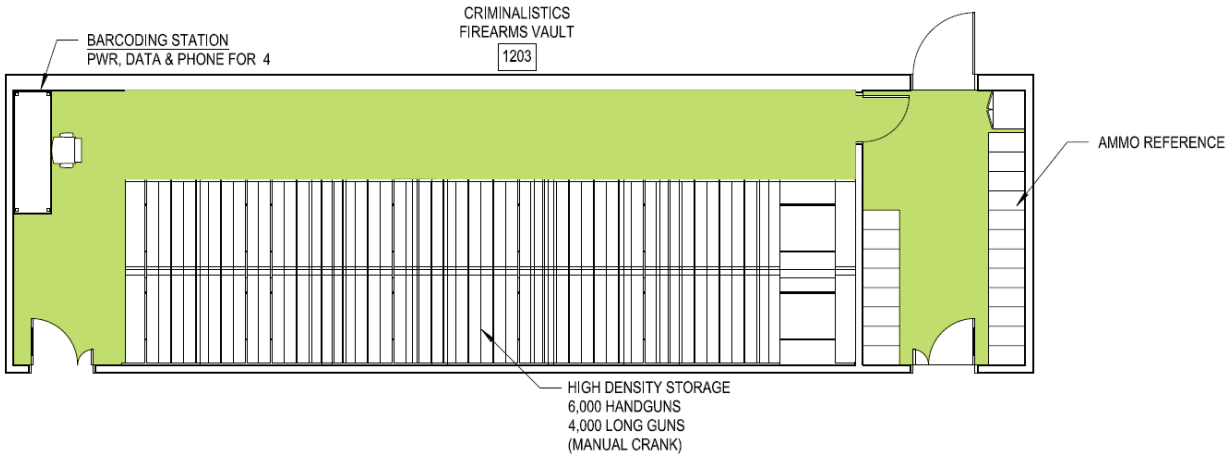


Room 1202

Criminalistics Firing Range

- HVAC: Air scrubber, lead filters exhausted to exterior
- Floor-to-ceiling and wall-to-wall rubber ballistic backstop (Range System Brand)
- Counter space with two workstations
- Sound suppression in walls, floor, and ceiling. Investigate structural separation for noise
- All walls, floor, and ceiling must be able to contain fired high caliber rifle bullets

ROOM NAME:	CRIMINALISTICS FIRING RANGE		**BSL:**	2	
AREA NUMBER:	1202		**ISO CLASS:**	NONE	
DEPARTMENT:	CRIMINALISTICS				
UNIT:	FIREARMS		**LAB TYPE:**	LAB SUPPORT	
ADJACENCIES:					
Department	IDENTIFICATION & IMAGING				
Area Number					
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	CONCRETE	Occupied Humidity		Sash height	N/A
Base	NONE	Summer Min & Max		Airflow	N/A
Partition Type	CONCRETE	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	BAFFLES	Summer Min & Max		Piped Services	N/A
Height	TBD	Winter Min & Max		Cup sink / Water	N/A
Door Type	4' SINGLE STEEL	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	NONE	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	N/A	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	WOOD	Process Chilled Water		**ELECTRICAL**	
Color	MAPLE	Flow	N/A	110V, 20A, 1 Phase	6
Thickness	2"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	N/A	Delta T	N/A	Special Outlet Config	NONE
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE
Services	N/A	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	30
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	"IN USE" LIGHT
Water Type	CIRCULATION	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	NONE	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	1	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE



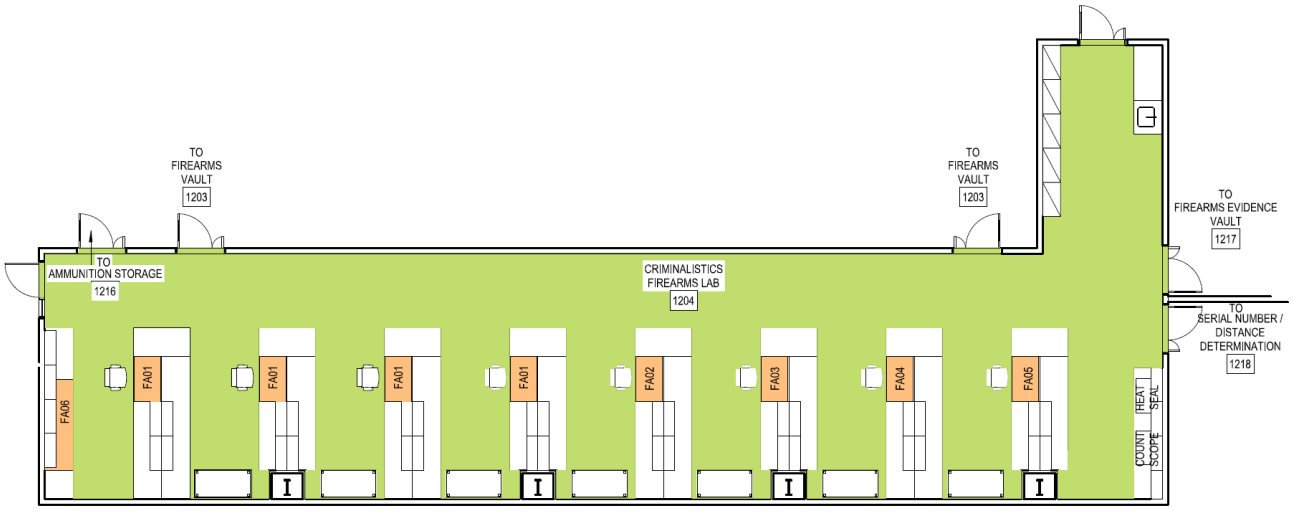
Room 1203

Criminalistics Firearms Vault- High Density Moveable gun storage

- Lessor provided floor-to-ceiling, high-density moveable gun storage (to store 10,000 firearms, 6,000 pistols, and 4,000 long guns). Floor slab will be required to hold the weight of the files and weapons.
- Ammunition/reference collection cabinets 16"W x 6"D x 36"H (supplied by Lessor)
- One cubicle worksurface 9'-0" long
- Vault Door to be 4' wide, fire-rated to a minimum of 2 hours, with card reader access on door, interior camera and motion detection
- Construct to ASTM standards
- HVAC must be independently temperature and humidity controlled
- No plumbing or wet piping should run over this room
- Fire Control: VESDA smoke detection and pre-action sprinklers

MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	6
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recirc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	2 ACH

LIGHTING	
Type	LED
Foot-candle	30
Dimming / Multi-Leve	NONE
Zoning Control	NONE
Timer Control	NONE
Occupancy Sensor	YES
Daylighting Sensor	NONE
Task Lighting	YES
FIRE PROTECTION	
System Type	PREACTION
Smoke or Heat Detectors	VESDA
MONITORING	
Temperature/ Humidi	NONE
Equipment	NONE

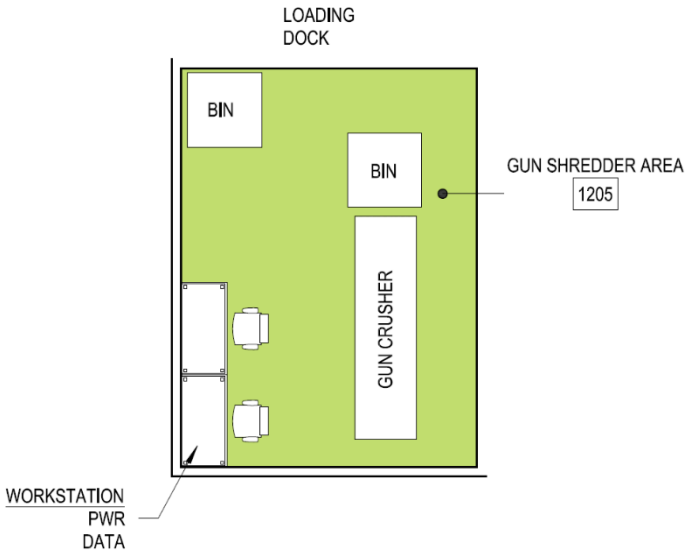


Room 1204

Criminalistics Firearms Lab

- Shelving for firearms reference book collection (supplied by DOJ)
- Microscopes (supplied by DOJ)
- 2'x3' snorkel hoods (supplied by Lessor) and vented to the outside
- Acid-resistant sink
- Compressed air
- Fire control – VESDA smoke detection and pre-action sprinklers

ROOM NAME:	CRIMINALISTICS FIREARMS LAB		**BSL:**	2	
AREA NUMBER:	1204		**ISO CLASS:**	NONE	
DEPARTMENT:	CRIMINALISTICS				
UNIT:	FIREARMS		**LAB TYPE:**	LAB	
ADJACENCIES:					
Department	IDENTIFICATION & IMAGING				
Area Number					
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	SNORKEL
Staff Count	8	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	SHEET	Occupied Humidity		Sash height	N/A
Base	RWB	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	YES	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	YES	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	HAND	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	16" x 14" x 10"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	NONE
Services	CW, HW	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	SANITARY	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	PREACTION
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	VESDA
Other	NONE	Data / Telephone	2 PER 4 LF BENCH	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagi	YES	Equipment	NONE

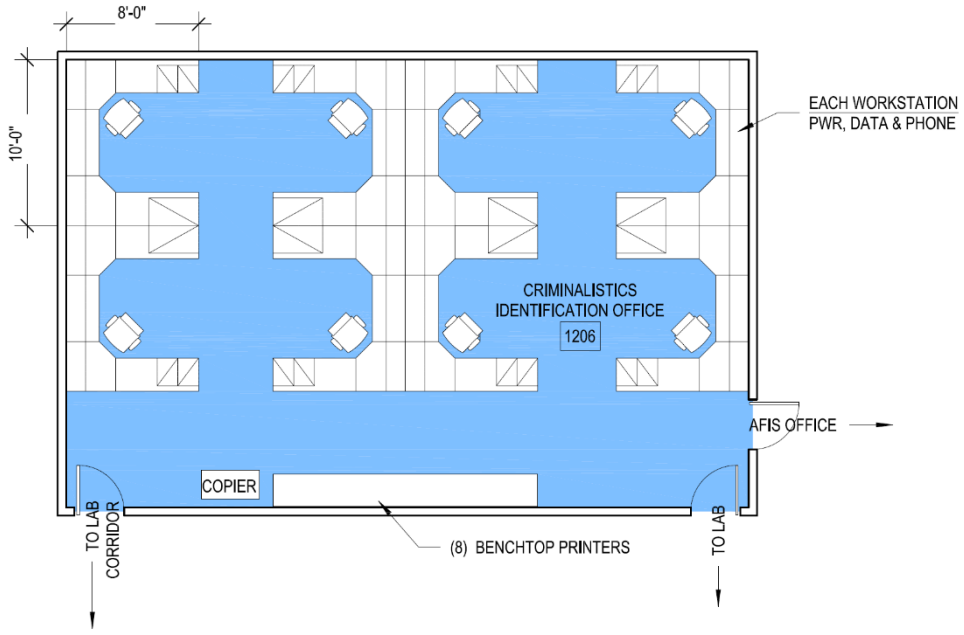


Room 1205

Gun Shredder Area

- Located in the loading dock and does not need to be a separate room
- Equipment specifications:
  - 12'L x 4'D x 5'H
  - Requires 2' of clearance on the front right and left sides
  - Weighs approximately 5,000 pounds
  - 480V, 180 amps @460 VAC (utilization voltage)
- Sealed concrete floor
- Exhaust system per building code to outside of building for discharge of dust particles
- Two (2) desks with power, and data
- Duplex 110 outlets and data every 4’ around perimeter. Wall phones

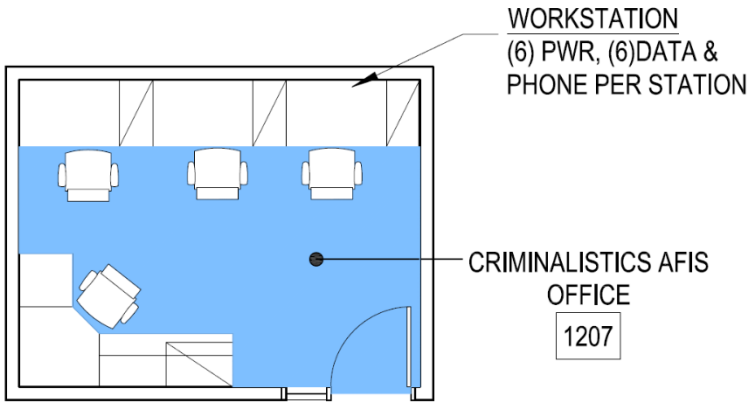
MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	6
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	4 ACH



Room 1206

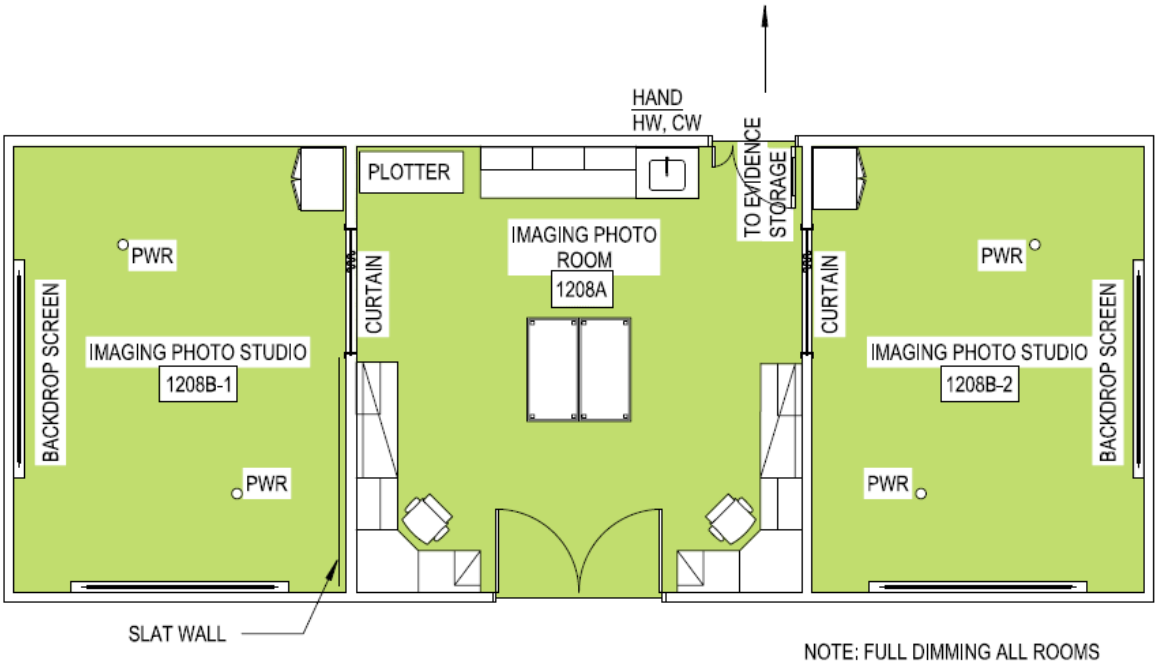
Criminalistics Identification Office- Eight 8'x10' square foot cubicles (6 data per station)

- Card Reader access
- See Appendix 2 for additional cubicle requirements
- Lower Cabinets with plastic laminate top
- Natural light



Room 1207

Criminalistics AFIS Office – Space for One NGI Station and Three AFIS Millwork Stations
(Typical Private Office-Refer to Appendix 2 for additional requirements)



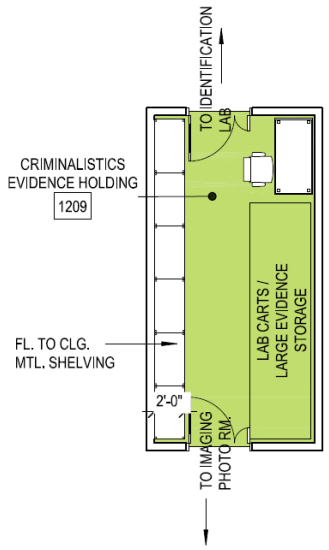
Rooms 1208A, 1208B-1 and 1208B-2, and 1210

Imaging Photo Room, Imaging Photo Studios and Cubicles

- (2) 10’ long ceiling mounted pull down backdrop screen
- 220V power for Princeton camera (camera supplied by DOJ)
- 10' x 12' ceiling mounted sliding room divider. Curtain must be fire resistant.
- Cubicles to have 30” counters with uppers and lower cabinets. Box drawers and doors with pull out shelves. Power, voice and data.
- Two (2) 80” tall, 2 door cabinets (one in room 1208B-1 and one in 1208B-2)
- Quad 110V outlets and data lines spaced every 4 feet around perimeter of room
- One slat wall attached to wall (DOJ Supplied)
- Three (3) ceiling mounted pull down 110V outlets evenly spaced throughout
- Floor must be perfectly level and smooth. Carpet in Room 1208A, Sheet Vinyl in rooms 1208B-1 and 1208B-2.
- Walls must be flat pure white
- Ceilings 18% grey
- Two ceiling fans to be in area 1208A
- Avoid placing studio over pumps and compressors

ROOM NAME:	IMAGING PHOTO ROOM			**BSL:**	2		
AREA NUMBER:	1208A			**ISO CLASS:**	NONE		
DEPARTMENT:	CRIMINALISTICS						
UNIT:	IMAGING			**LAB TYPE:**	LAB		
ADJACENCIES:							
Department	IDENTIFICATION, FIREARMS						
Area Number							
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**			
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE		
Staff Count	2	Summer Min & Max		Quantity	N/A		
ARCHITECTURAL		Winter Min & Max		Size	N/A		
Floor Material	CARPET	Occupied Humidity		Sash height	N/A		
Base	RWB	Summer Min & Max		Airflow	N/A		
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A		
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A		
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A		
Height	12'-0"	Winter Min & Max		Cup sink / Water	N/A		
Door Type	6' DOUBLE	Un-Occupied Humidity		Storage Below	N/A		
Vision Panel	YES	Summer Min & Max		Electrical	N/A		
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	METAL	Directional	Negative	Airflow	N/A		
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Base Cabinets	YES	Supply	14	Piped Services	N/A		
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A		
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A		
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A		
Glassware Storage	NONE	Un-Occupied	2 ACH	Airflow	N/A		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A		
Bench top		Room Noise Level	N/A	Snorkel	N/A		
Material	EPOXY	Process Chilled Water		**ELECTRICAL**			
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	YES		
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	1		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	HAND	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	16" x 14" x 10"	Delta T	N/A	Special Outlet Config	NONE		
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	NONE		
Services	CW, HW	Flow	N/A	Conditioned Power	NONE		
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE		
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE		
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE		
Services	N/A	Delta T	N/A	Clocks	YES		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	NONE	Flow	N/A	Type	LED		
Eyewash	NONE	Pressure	N/A	Foot-candle	30		
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM		
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	SPECIALITY		
Local Polisher	NONE	**SECURITY**		Timer Control	NONE		
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	NONE	Video Surveillance	NONE	Task Lighting	YES		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	YES		
Other	NONE	Data / Telephone	1 PER 4 LF BENCH	**MONITORING**			
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE		
		Intercom System (PA) / Pagir	YES	Equipment	NONE		

ROOM NAME:	IMAGING PHOTO STUDIO			**BSL:**	2		
AREA NUMBER:	1208B-1, 1208B-2			**ISO CLASS:**	NONE		
DEPARTMENT:	CRIMINALISTICS						
UNIT:	IMAGING			**LAB TYPE:**	LAB		
ADJACENCIES:							
Department	IDENTIFICATION, FIREARMS						
Area Number							
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**			
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE		
Staff Count	1	Summer Min & Max		Quantity	N/A		
ARCHITECTURAL		Winter Min & Max		Size	N/A		
Floor Material	SHEET	Occupied Humidity		Sash height	N/A		
Base	RWB	Summer Min & Max		Airflow	N/A		
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A		
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A		
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A		
Height	12'-0"	Winter Min & Max		Cup sink / Water	N/A		
Door Type	CASED	Un-Occupied Humidity		Storage Below	N/A		
Vision Panel	YES	Summer Min & Max		Electrical	N/A		
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	CURTAIN	Equip Power Density (watt/sf)	6	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	NONE	Directional	Negative	Airflow	N/A		
Fixed or Mobile	N/A	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Base Cabinets	NONE	Supply	14	Piped Services	N/A		
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A		
Glass Fronts	N/A	Air Recirc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A		
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A		
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A		
Bench top		Room Noise Level	N/A	Snorkel	N/A		
Material	N/A	Process Chilled Water		**ELECTRICAL**			
Color	N/A	Flow	N/A	110V, 20A, 1 Phase	2 CORD REELS		
Thickness	N/A	Pressure Rating	N/A	208V, 30A, 1 Phase	1		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	N/A	Delta T	N/A	Special Outlet Config	YES		
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE		
Services	N/A	Flow	N/A	Conditioned Power	NONE		
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE		
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE		
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE		
Services	N/A	Delta T	N/A	Clocks	YES		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	NONE	Flow	N/A	Type	LED		
Eyewash	NONE	Pressure	N/A	Foot-candle	30		
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM		
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	SPECIALITY		
Local Polisher	NONE	**SECURITY**		Timer Control	NONE		
Waste	NONE	Door Access Control (Type)	NONE	Occupancy Sensor	YES		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	NONE	Video Surveillance	NONE	Task Lighting	YES		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	YES		
Other	NONE	Data / Telephone	4	**MONITORING**			
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE		
		Intercom System (PA) / Pagir	YES	Equipment	NONE		



Room 1209

Criminalistics Evidence Holding

- Walls floor to deck
- Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	CRIMINALISTICS EVIDENCE HOLDING	**BSL:**	2
AREA NUMBER:	1209	**ISO CLASS:**	NONE
DEPARTMENT:	CRIMINALISTICS		
UNIT:	CRIMINALISTICS	**LAB TYPE:**	LAB SUPPORT
ADJACENCIES:			
Department	IDENTIFICATION & IMAGING		
Area Number			

UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	SHEET	Occupied Humidity		Sash height	N/A
Base	RWB	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	YES	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	NONE	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	N/A	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	YES	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	YES
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	N/A	Delta T	N/A	Special Outlet Config	NONE
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE
Services	N/A	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	NONE
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	30
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	SPECIALITY
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	YES	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	YES	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	1	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	YES
		Intercom System (PA) / Pagir	YES	Equipment	NONE

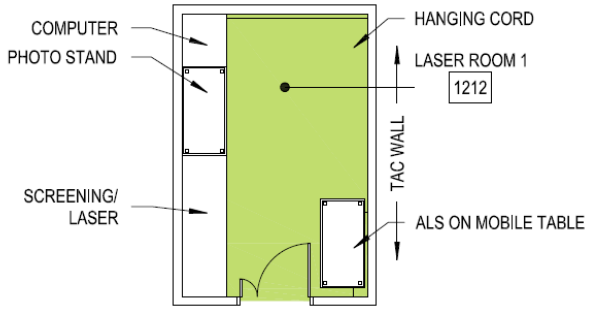
Room 1211

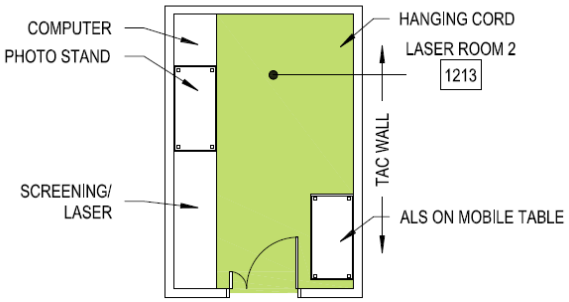
Criminalistics Identification Lab- Eight 8'x 5' Workbenches

Room 1212 and 1213

Laser Rooms 1 and 2

- 5' section of countertop to be height adjustable for camera station.
- Lower Cabinets (29" D x 36"H) to be dark chemical-resistant stone and combination of drawers and pull-out shelves. (millwork)
- One entire wall of black rubber self-heating tack board
- Ten (10) duplex 110V outlets throughout room; 2 data lines/jacks; 1 phone line
- Additional cooling for room
- Fire Control: VESDA smoke detection and pre-action sprinklers

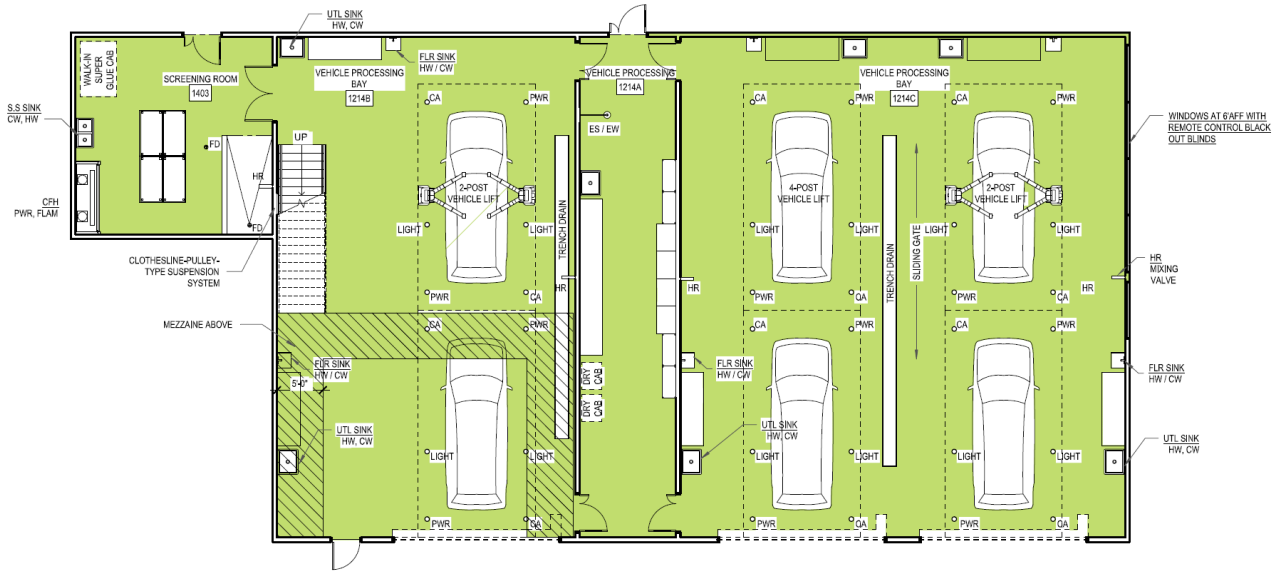




ROOM NAME:	CRIMINALISTICS IDENTIFICATION LAB		**BSL:**	2	
AREA NUMBER:	1211		**ISO CLASS:**	NONE	
DEPARTMENT:	CRIMINALISTICS				
UNIT:	IDENTIFICATION		**LAB TYPE:**	LAB	
ADJACENCIES:					
Department	IMAGING AND FIREARMS				
Area Number	1208, 1209, 1212, 1213				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	CFH, EXP, PART
Staff Count	10	Summer Min & Max		Quantity	6' (3) / 5' (3)
ARCHITECTURAL		Winter Min & Max		Size	6' (3) / 5' (3)
Floor Material	SHEET	Occupied Humidity		Sash height	18"
Base	RWB	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	CA
Height	10'-0"	Winter Min & Max		Cup sink / Water	NONE
Door Type	LAB	Un-Occupied Humidity		Storage Below	TBD
Vision Panel	YES	Summer Min & Max		Electrical	YES
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	YES	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	YES
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	18" x 14"x 12"	Delta T	N/A	Special Outlet Config	YES
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	YES
Services	CW, HW, TYPE 2	Flow	N/A	Conditioned Power	NONE
Sink Type	HAND	Pressure Rating	N/A	UPS	YES
Size	16" x 14" x 10"	Static Pressure	N/A	Explosion Proof	NONE
Material	EPOXY	Supply Temp	N/A	GFCI Outlets	YES
Services	CW / HW	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	YES	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	TYPE 1	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	YES	**SECURITY**		Timer Control	NONE
Waste	ACID	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	YES	Video Surveillance	NONE	Task Lighting	YES
Vacuum	TBD	Other	N/A	**FIRE PROTECTION**	
Nitrogen	TBD	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	TBD	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	TBD	Data / Telephone	YES	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE

ROOM NAME:	LASER ROOM 1 AND 2	**BSL:**	2
AREA NUMBER:	1212 and 1213	**ISO CLASS:**	NONE
DEPARTMENT:	CRIMINALISTICS		
UNIT:	IDENTIFICATION	**LAB TYPE:**	LAB SUPPORT
ADJACENCIES:			
Department	IMAGING AND FIREARMS		
Area Number	1211		

UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	SHEET	Occupied Humidity		Sash height	N/A
Base	RWB	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	GWB	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	NONE	Summer Min & Max		Electrical	N/A
Seals	YES	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	10	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	NONE	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	10
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	N/A	Delta T	N/A	Special Outlet Config	NONE
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE
Services	N/A	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	NONE
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	50
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	SPECIALITY
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	NONE	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	NONE
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	YES
Other	NONE	Data / Telephone	2	**MONITORING**	
		Wall Mounted Telephone	NONE	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE



Rooms 1214A, 1214B, 1214C and 1403

Vehicle Processing Corridor and Bays

- Walk-in superglue chamber vented to the exterior
- All counters will be chemical resistant
- 1 data and 1 phone line per bay
- Compressed air available to every bay
- 110V duplex outlets around perimeter
- Two (2) pull down retractable work lights per bay
- Four (4) pull down retractable outlets per bay
- 18-foot, insulated garage doors with remote openers and card readers access
- Must be climate controlled
- Laboratory equivalent lighting
- Floor: chemical-resistant Epoxy covered concrete floors
- Compressed air with handling retractable air hoses, hose bib, catch
- Mezzanine level located over parking stall-see hatched area in plan with metal stairs with enclosed risers. Enclosed metal railing running the length of the mezzanine.

ROOM NAME:	VEHICLE PROCESSING	**BSL:**	2
AREA NUMBER:	1214A	**ISO CLASS:**	NONE
DEPARTMENT:	CRIMINALISTICS		
UNIT:	IDENTIFICATION	**LAB TYPE:**	LAB
ADJACENCIES:			
Department	IDENTIFICATION		
Area Number			

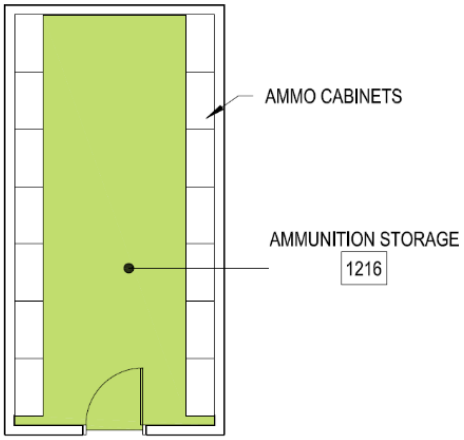
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	3	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A
Base	INTEGRAL	Summer Min & Max		Airflow	N/A
Partition Type	CMU	Winter Min & Max		Face Velocity	N/A
Paint	EPOXY	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	NONE	Summer Min & Max		Piped Services	N/A
Height	N/A	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	YES	Summer Min & Max		Electrical	N/A
Seals	NONE	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	S.S.	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	NONE	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	YES	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	S.S.	Process Chilled Water		**ELECTRICAL**	
Color	N/A	Flow	N/A	110V, 20A, 1 Phase	NONE
Thickness	18 GAUGE	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	UTILITY	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	30" X 30"	Delta T	N/A	Special Outlet Config	YES
Material	S.S.	Heated Process Water		Standby Pwr (Generator)	NONE
Services	CW, HW	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	YES	Flow	N/A	Type	
Eyewash	YES	Pressure	N/A	Foot-candle	100
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	YES
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	OIL / GREASE	Door Access Control (Type)	CR	Occupancy Sensor	NONE
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	YES	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	YES
Other	NONE	Data / Telephone	1	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE

ROOM NAME:	VEHICLE PROCESSING			**BSL:**	2		
AREA NUMBER:	1214B			**ISO CLASS:**	NONE		
DEPARTMENT:	CRIMINALISTICS						
UNIT:	IDENTIFICATION			**LAB TYPE:**	LAB		
ADJACENCIES:							
Department	IDENTIFICATION						
Area Number							
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**			
Schedule of Use	12	Occupied Temperature		Exhausted Hood (Type)	NONE		
Staff Count	6	Summer Min & Max		Quantity	N/A		
ARCHITECTURAL		Winter Min & Max		Size	N/A		
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A		
Base	INTEGRAL	Summer Min & Max		Airflow	N/A		
Partition Type	CMU	Winter Min & Max		Face Velocity	N/A		
Paint	EPOXY	Un-Occupied Temperature		Static Pressure	N/A		
Ceiling Type	NONE	Summer Min & Max		Piped Services	N/A		
Height	N/A	Winter Min & Max		Cup sink / Water	N/A		
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A		
Vision Panel	YES	Summer Min & Max		Electrical	N/A		
Seals	NONE	Winter Min & Max		Recirculating Hood (Type	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	S.S.	Directional	Negative	Airflow	N/A		
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Base Cabinets	YES	Supply	14	Piped Services	N/A		
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A		
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	NONE	EHS Min Air Changes		Quantity	N/A		
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A		
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A		
Bench top		Room Noise Level	N/A	Snorkel	N/A		
Material	S.S.	Process Chilled Water		**ELECTRICAL**			
Color	N/A	Flow	N/A	110V, 20A, 1 Phase	CORD REELS		
Thickness	18 GAUGE	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	UTILITY	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	30" X 30"	Delta T	N/A	Special Outlet Config	YES		
Material	S.S.	Heated Process Water		Standby Pwr (Generator)	NONE		
Services	CW, HW	Flow	N/A	Conditioned Power	NONE		
Sink Type	FLOOR	Pressure Rating	N/A	UPS	NONE		
Size	30" X 30"	Static Pressure	N/A	Explosion Proof	NONE		
Material	S.S.	Supply Temp	N/A	GFCI Outlets	YES		
Services	CW, HW	Delta T	N/A	Clocks	YES		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	NONE	Flow	N/A	Type			
Eyewash	YES	Pressure	N/A	Foot-candle	100		
Floor Drain	TRENCH	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM		
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	YES		
Local Polisher	NONE	**SECURITY**		Timer Control	NONE		
Waste	OIL / GREASE	Door Access Control (Type)	CR	Occupancy Sensor	NONE		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	REELS	Video Surveillance	NONE	Task Lighting	YES		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	YES		
Other	NONE	Data / Telephone	2	**MONITORING**			
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE		
		Intercom System (PA) / Pagir	YES	Equipment	NONE		

ROOM NAME:	VEHICLE PROCESSING			**BSL:**	2		
AREA NUMBER:	1214C			**ISO CLASS:**	NONE		
DEPARTMENT:	CRIMINALISTICS						
UNIT:	IDENTIFICATION			**LAB TYPE:**	LAB		
ADJACENCIES:							
Department	IDENTIFICATION						
Area Number							
UTILIZATION			**MECHANICAL**	See Bldg. Sys. Criteria		**HOODS**	
Schedule of Use	12		Occupied Temperature			Exhausted Hood (Type)	NONE
Staff Count	6		Summer Min & Max			Quantity	N/A
ARCHITECTURAL			Winter Min & Max			Size	N/A
Floor Material	EPOXY		Occupied Humidity			Sash height	N/A
Base	INTEGRAL		Summer Min & Max			Airflow	N/A
Partition Type	CMU		Winter Min & Max			Face Velocity	N/A
Paint	EPOXY		Un-Occupied Temperature			Static Pressure	N/A
Ceiling Type	NONE		Summer Min & Max			Piped Services	N/A
Height	N/A		Winter Min & Max			Cup sink / Water	N/A
Door Type	LAB		Un-Occupied Humidity			Storage Below	N/A
Vision Panel	YES		Summer Min & Max			Electrical	N/A
Seals	NONE		Winter Min & Max			Recirculating Hood (Type	NONE
Overhead Door	N/A		Light Power Density (watt/sf)	1.4		Quantity	N/A
Cased Opening	N/A		Equip Power Density (watt/sf)	6		Size	N/A
Casework			Pressure Control			Sash height	N/A
Material	S.S.		Directional	Negative		Airflow	N/A
Fixed or Mobile	FIXED		Active	N/A		Face Velocity	N/A
Storage			Filtration MERV			Static Pressure	N/A
Base Cabinets	YES		Supply	14		Piped Services	N/A
Wall Cabinets	NONE		Exhaust	N/A		Electrical	N/A
Glass Fronts	NONE		Air Recirc or Exhaust	Exh		Point Exhaust	
Swinging or Sliding	NONE		EHS Min Air Changes			Quantity	N/A
Shelves Wall or Benc	NONE		Occupied	6 ACH		Size	N/A
Glassware Storage	NONE		Un-Occupied	4 ACH		Airflow	N/A
Rack Shelving	NONE		Vibration Sensitivity	N/A		Static Pressure	N/A
Bench top			Room Noise Level	N/A		Snorkel	N/A
Material	S.S.		Process Chilled Water			**ELECTRICAL**	
Color	N/A		Flow	N/A		110V, 20A, 1 Phase	CORD REELS
Thickness	18 GAUGE		Pressure Rating	N/A		208V, 30A, 1 Phase	NONE
PLUMBING			Static Pressure	N/A		208V, 30A, 3 Phase	NONE
Sink Type	UTILITY		Supply Temp	N/A		480V, 100A, 3 Phase	NONE
Size	30" X 30"		Delta T	N/A		Special Outlet Config	YES
Material	S.S.		Heated Process Water			Standby Pwr (Generator)	NONE
Services	CW, HW		Flow	N/A		Conditioned Power	NONE
Sink Type	FLOOR		Pressure Rating	N/A		UPS	NONE
Size	30" X 30"		Static Pressure	N/A		Explosion Proof	NONE
Material	S.S.		Supply Temp	N/A		GFCI Outlets	YES
Services	CW, HW		Delta T	N/A		Clocks	YES
Safety			Process Steam Equipment			**LIGHTING**	
Emergency Shower	NONE		Flow	N/A		Type	
Eyewash	YES		Pressure	N/A		Foot-candle	100
Floor Drain	TRENCH		Condensate Return	N/A		Dimming / Multi-Leve	1% DIM
Pure Water Type	NONE		Max Backpressure	N/A		Zoning Control	YES
Local Polisher	NONE		**SECURITY**			Timer Control	NONE
Waste	OIL / GREASE		Door Access Control (Type)	CR		Occupancy Sensor	NONE
Piped Services (Press/Qual/Vol)			Intrusion Detection	NONE		Daylighting Sensor	NONE
Air	REELS		Video Surveillance	NONE		Task Lighting	YES
Vacuum	NONE		Other	N/A		**FIRE PROTECTION**	
Nitrogen	NONE		**COMMUNICATIONS**			System Type	WET
Pure (Zero) Air	NONE		Audio/Video	NONE		Smoke or Heat Detectors	YES
Other	NONE		Data / Telephone	2		**MONITORING**	
			Wall Mounted Telephone	1		Temperature/ Humidi	NONE
			Intercom System (PA) / Pagir	YES		Equipment	NONE

ROOM NAME:	SCREENING ROOM			**BSL:**	NONE		
AREA NUMBER:	1403			**ISO CLASS:**	NONE		
DEPARTMENT:	CSRT						
UNIT:	CSRT			**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:							
Department	IDENTIFICATION, CRIMINALISTICS						
Area Number	1211, 1214						
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**			
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE		
Staff Count	2	Summer Min & Max		Quantity	N/A		
ARCHITECTURAL		Winter Min & Max		Size	N/A		
Floor Material	EPOXY	Occupied Humidity		Sash height	N/A		
Base	INTEGRAL	Summer Min & Max		Airflow	N/A		
Partition Type	FRP	Winter Min & Max		Face Velocity	N/A		
Paint	N/A	Un-Occupied Temperature		Static Pressure	N/A		
Ceiling Type	GWB	Summer Min & Max		Piped Services	N/A		
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A		
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A		
Vision Panel	YES	Summer Min & Max		Electrical	N/A		
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	NONE	Directional	Negative	Airflow	N/A		
Fixed or Mobile	N/A	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Base Cabinets	NONE	Supply	14	Piped Services	N/A		
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A		
Glass Fronts	N/A	Air Recirc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A		
Shelves Wall or Bench	NONE	Occupied	6 ACH	Size	N/A		
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A		
Bench top		Room Noise Level	N/A	Snorkel	N/A		
Material	N/A	Process Chilled Water		**ELECTRICAL**			
Color	N/A	Flow	N/A	110V, 20A, 1 Phase	YES		
Thickness	N/A	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	SCULLERY	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	TBD	Delta T	N/A	Special Outlet Config	NONE		
Material	S.S.	Heated Process Water		Standby Pwr (Generator)	NONE		
Services	CW, HW	Flow	N/A	Conditioned Power	NONE		
Sink Type	HOSE REEL	Pressure Rating	N/A	UPS	NONE		
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE		
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES		
Services	N/A	Delta T	N/A	Clocks	NONE		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	NONE	Flow	N/A	Type	LED		
Eyewash	NONE	Pressure	N/A	Foot-candle	100 (50+TASK)		
Floor Drain	2	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM		
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE		
Local Polisher	NONE	**SECURITY**		Timer Control	NONE		
Waste	SANITARY	Door Access Control (Type)	CR	Occupancy Sensor	YES		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	NONE	Video Surveillance	NONE	Task Lighting	NONE		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	N/A		
Other	NONE	Data / Telephone	2	**MONITORING**			
		Wall Mounted Telephone	1	Temperature/ Humidit	NONE		
		Intercom System (PA) / Pagin	YES	Equipment	NONE		

Room 1216
Ammunition Storage

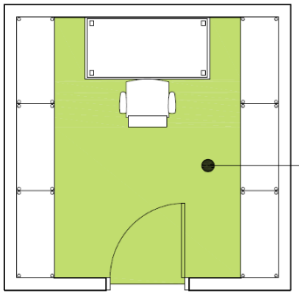


ROOM NAME:	AMMUNITION STORAGE			**BSL:**	2		
AREA NUMBER:	1216			**ISO CLASS:**	NONE		
DEPARTMENT:	CRIMINALISTICS						
UNIT:	FIREARMS			**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:							
Department	IDENTIFICATION & IMAGING						
Area Number							
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**			
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE		
Staff Count	0	Summer Min & Max		Quantity	N/A		
ARCHITECTURAL		Winter Min & Max		Size	N/A		
Floor Material	SHEET	Occupied Humidity		Sash height	N/A		
Base	RWB	Summer Min & Max		Airflow	N/A		
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A		
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A		
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A		
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A		
Door Type	3' STEEL	Un-Occupied Humidity		Storage Below	N/A		
Vision Panel	YES	Summer Min & Max		Electrical	N/A		
Seals	N/A	Winter Min & Max		Recirculating Hood (Type	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	N/A	Equip Power Density (watt/sf)	2	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	NONE	Directional	Negative	Airflow	N/A		
Fixed or Mobile	N/A	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Cabinets	MTL AMMO	Supply	14	Piped Services	N/A		
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A		
Glass Fronts	N/A	Air Recirc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A		
Shelves Wall or Benc	NONE	Occupied	N/A	Size	N/A		
Glassware Storage	NONE	Un-Occupied	N/A	Airflow	N/A		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A		
Bench top		Room Noise Level	N/A	Snorkel	N/A		
Material	N/A	Process Chilled Water		**ELECTRICAL**			
Color	N/A	Flow	N/A	110V, 20A, 1 Phase	YES		
Thickness	N/A	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	N/A	Delta T	N/A	Special Outlet Config	NONE		
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE		
Services	N/A	Flow	N/A	Conditioned Power	NONE		
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE		
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE		
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE		
Services	N/A	Delta T	N/A	Clocks	NONE		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	NONE	Flow	N/A	Type	LED		
Eyewash	NONE	Pressure	N/A	Foot-candle	30		
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	NONE		
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE		
Local Polisher	NONE	**SECURITY**		Timer Control	NONE		
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	NONE	Video Surveillance	NONE	Task Lighting	NONE		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT		
Other	NONE	Data / Telephone	1	**MONITORING**			
		Wall Mounted Telephone	NONE	Temperature/ Humidi	NONE		
		Intercom System (PA)	YES	Equipment	NONE		

Room 1217

Firearms Evidence Vault

Fire Control: VESDA smoke detection and pre-action sprinklers

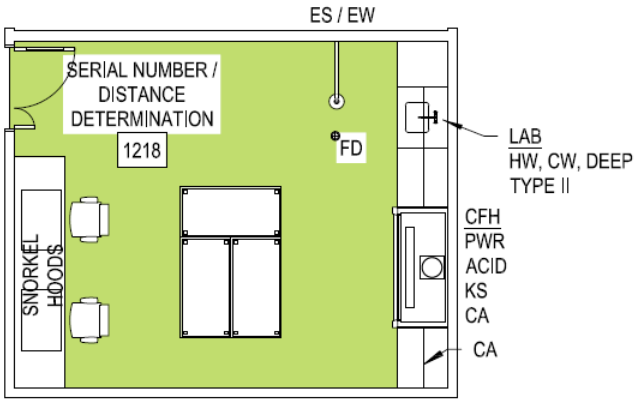


ROOM NAME:	FIREARMS EVIDENCE VAULT		**BSL:**	2			
AREA NUMBER:	1217		**ISO CLASS:**	NONE			
DEPARTMENT:	CRIMINALISTICS						
UNIT:	FIREARMS		**LAB TYPE:**	LAB SUPPORT			
ADJACENCIES:							
Department	IDENTIFICATION & IMAGING						
Area Number							
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	SHEET	Occupied Humidity		Sash height	N/A
Base	RWB	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	3' STEEL	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	NONE	Summer Min & Max		Electrical	N/A
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	NONE	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	N/A	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	YES	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	YES
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	N/A	Delta T	N/A	Special Outlet Config	NONE
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE
Services	N/A	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	NONE
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	30
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	NONE
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	YES	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	YES	Task Lighting	NONE
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	2	**MONITORING**	
		Wall Mounted Telephone	NONE	Temperature/ Humidi	NONE
		Intercom System (PA)	YES	Equipment	NONE

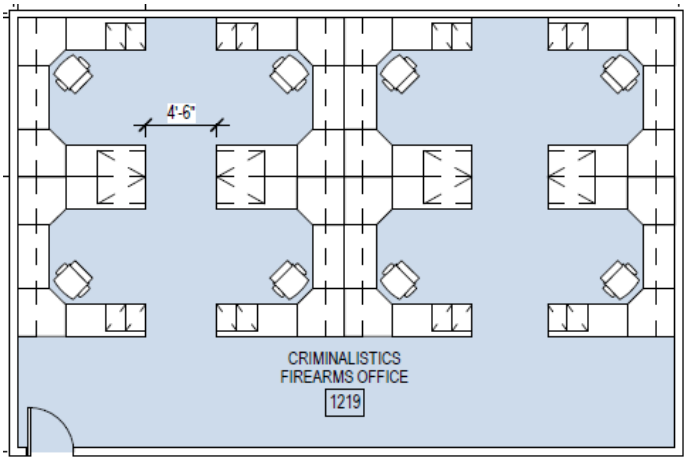
Room 1218

Serial Number Restoration/Determination

Fire Control: VESDA smoke detection and pre-action sprinklers



ROOM NAME:	SERIAL NUMBER RESTORATION / DISTANCE DE	**BSL:**	2				
AREA NUMBER:	1218	**ISO CLASS:**	NONE				
DEPARTMENT:	CRIMINALISTICS						
UNIT:	FIREARMS	**LAB TYPE:**	LAB SUPPORT				
ADJACENCIES:							
Department	IDENTIFICATION & IMAGING						
Area Number							
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**			
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV		
Staff Count	2	Summer Min & Max		Quantity	1		
ARCHITECTURAL		Winter Min & Max		Size	6'		
Floor Material	SHEET	Occupied Humidity		Sash height	18"		
Base	RWB	Summer Min & Max		Airflow	100 FPM		
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM		
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1		
Ceiling Type	APC	Summer Min & Max		Piped Services	CA		
Height	10'-0"	Winter Min & Max		Cup sink / Water	NONE		
Door Type	LAB	Un-Occupied Humidity		Storage Below	ACID / KS		
Vision Panel	YES	Summer Min & Max		Electrical	YES		
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	METAL	Directional	Negative	Airflow	N/A		
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Base Cabinets	YES	Supply	14	Piped Services	N/A		
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A		
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	2		
Shelves Wall or Benc	NONE	Occupied	6 ACH	Size	10"		
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	TBD		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	TBD		
Bench top		Room Noise Level	N/A	Snorkel	HOOD		
Material	EPOXY	Process Chilled Water		**ELECTRICAL**			
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH		
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	18" x 14"x 12"	Delta T	N/A	Special Outlet Config	NONE		
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	NONE		
Services	CW, HW, TYPE 2	Flow	N/A	Conditioned Power	NONE		
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE		
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE		
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES		
Services	N/A	Delta T	N/A	Clocks	YES		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	YES	Flow	N/A	Type	LED		
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)		
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM		
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE		
Local Polisher	NONE	**SECURITY**		Timer Control	NONE		
Waste	ACID	Door Access Control (Type)	CR	Occupancy Sensor	YES		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	YES	Video Surveillance	NONE	Task Lighting	YES		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT		
Other	NONE	Data / Telephone	YES	**MONITORING**			
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE		
		Intercom System (PA) / Pagir	YES	Equipment	NONE		



Room 1219

Criminalistics Firearms Office – Eight 8'x8' Cubicles
(See Appendix 2 for additional requirements)

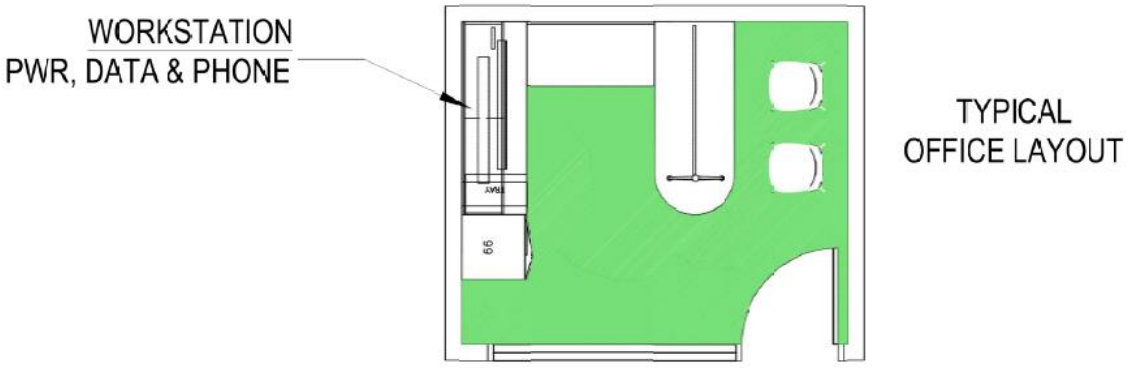
ROOM NAME:	TYPICAL OPEN OFFICE	**FUNCTION:**	OFFICE		
AREA NUMBER:					
DEPARTMENT:		**ROOM TYPE:**	OPEN OFFICE		
UNIT:					
ADJACENCIES:					
Department					
Area Number					
UTILIZATION		**MECHANICAL**		**ELECTRICAL**	
Schedule of Use	12 HOURS	Heating	TBD	Power (Volts)	120
Staff Count	VARIES	Cooling	TBD	Lighting (FC)	30
		Ventilation	TBD	Special	TASK
ARCHITECTURAL		Other	TBD	Lighting Motion Sensor	YES
Floor Material	CARPET				
Base	RWB	**COMMUNICATIONS**		**LIGHTING**	
Partition Type	GWB	Voice (Telephone)	YES	Natural Light	YES
STC	TBD	Data (Computer)	YES	Daylight Control	TBD
Ceiling Type	APC	Video	NONE		
Height	9'-0"	Cable TV	NONE	**FIRE PROTECTION**	
Door Type	SINGLE	CCTV	NONE	System Type	WET
Vision Panel	FULL	Audio	NONE	Smoke or Heat Detectors	NONE
Material	WOOD	Sound System	NONE		
Hardware	TBD	Intercom System (PA) / Paging	YES	**FIRE PROTECTION**	
Casework		Clock	YES	System Type	WET
Material	PLAM	Other	N/A	Smoke or Heat Detectors	TBD
Bench top					
Material	PLAM	**Audio/Visual**			
		Screens	NONE	**MOVEABLE EQUIPMENT**	
ACOUSTICS		Video Projector	NONE	Type	NONE
Description	TBD	Other	N/A	Size	N/A
NC Rating	TBD			Connections	N/A
		SECURITY		Type	NONE
PLUMBING		Door Access Control (Type)	CR	Size	N/A
Sink Type	NONE	Intrusion Detection	NONE	Connections	N/A
Size	N/A	Video Surveillance	NONE	Type	NONE
Material	N/A	KeyPD/Prox CD/Rex	TBD	Size	N/A
Services	N/A	Integration Req'd	TBD	Connections	N/A
Piped Services (Press/Qual/Vol)		Other	N/A		
Gases/Other	NONE			**FURNITURE**	
				Size	VARIES
				Material	PLAM
				Bench top	
				Material	PLAM

4. DNA

The DNA Analysis Unit routinely examines evidence for the presence of biological matter, develops DNA profiles utilizing scientific techniques, analyzes, and interprets data. Using the analysts' interpretations, conclusions can be drawn as to whether or not an individual is able to be included as a possible contributor to the DNA profile identified on the evidence. In circumstances where a suspect has not been identified, the DNA profile can be entered into the Combined DNA Index System (CODIS) for routine search against individuals required by State law to provide a DNA sample and other DNA evidence samples. The technology provides potential for unknown DNA evidence profiles to be associated with a known individual thus creating investigative leads for the submitting law enforcement agencies.
The DNA Analysis Unit also performs specialized DNA testing referred to as Y STR testing. YSTR analysis develops DNA profiles from males which may be useful in sexual assault cases where the amount of male DNA present may be low compared to the high amount of female DNA present in the evidence.

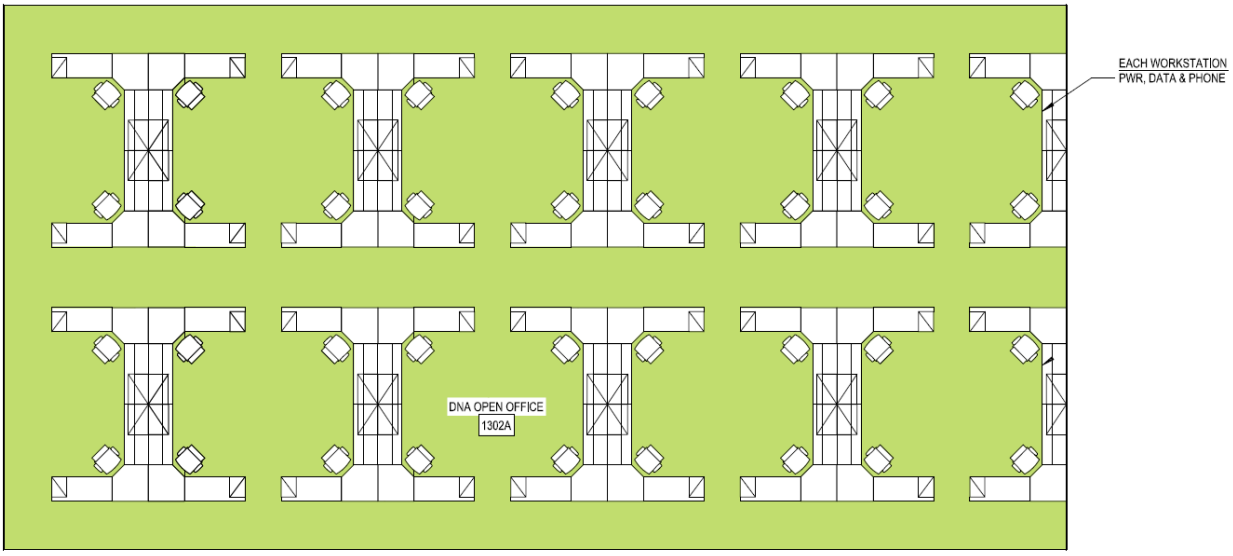
3.4 DNA

Area No.	Space Description	Square Footage Required	Staff Count	Comments
1301-1	DNA Supervisor Office	120	1	Office at 120 SF
1301-2	DNA Supervisor Office	120	1	Office at 120 SF
1301-3	DNA Supervisor Office	120	1	Office at 120 SF
1302A	DNA Open Office	3,960	36	Thirty-six (36) 8x8 cubicle workstations.
1302B	DNA CODIS Workstations	225	0	One office with three computer station for CODIS
1303-1	DNA Amplification	700	0	Room at 700 SF (negative air pressure). Deionized water and gas supply needed.
1303-2	DNA Amplification	700	0	Room at 700 SF (negative air pressure). Deionized water and gas supply needed.
1304A	DNA Technicians Office	1,000	10	Ten (10) 8x8 cubicle workstations.
1304B	DNA Technicians Lab	725	0	The lab space (square footage includes laboratory work space for the various duties performed by Forensic Program Technicians). Deionized water and gas supply needed.
1305-1	DNA Screening	350	0	
1305-2	DNA Screening	260	0	
1305-3	DNA Screening	260	0	
1305-4	DNA Screening	260	0	
1306	DNA Lab	5,000	0	Forty-four (44) workbenches (5'6"L x 6'D) with connected workbenches (8'L x 2'6"D) acid/bleach/chemical resistant benchtop materials). Deionized water and gas supply needed.
1307	DNA Robot Room	800	0	One (1) room. Deionized water and gas supply needed.
1308-1	DNA Vestibule	110	0	
1308-2	DNA Vestibule	110	0	
1308-3	DNA Vestibule	110	0	
1308-4	DNA Vestibule	110	0	
1309	DNA Freezer	0	0	Area for freezers where required, not built-in units. Included in DNA LAB 5,000 SF.
1310	DNA General Storage	350	0	
1311	DNA Intern Workstation	0	0	Three (3) 8x8 cubicle/desk areas, similar to DNA Office (1302). Included in open office SF and staff count.
1312	Waste	115	0	(Enclosed within) Adjacent to DNA Technicians (1304)
1313	DNA Active Evidence Storage	230	0	One (1) room
1314-1	Supply Closet	55	0	Closet located in DNA Amplification Room (1303)
1314-2	Supply Closet	55	0	Closet located in DNA Amplification Room (1303)
1315	New Technology Validation Room	350	0	Located off DNA Lab (1306). Workbench with moveable island defined as millwork matching wall cabinetry and acid/bleach/chemical resistant benchtop materials but mobile). Deionized water and gas supply needed.
1316	Not used		0	-
1317	Not used		0	
	ASF Totals	16,195	49	

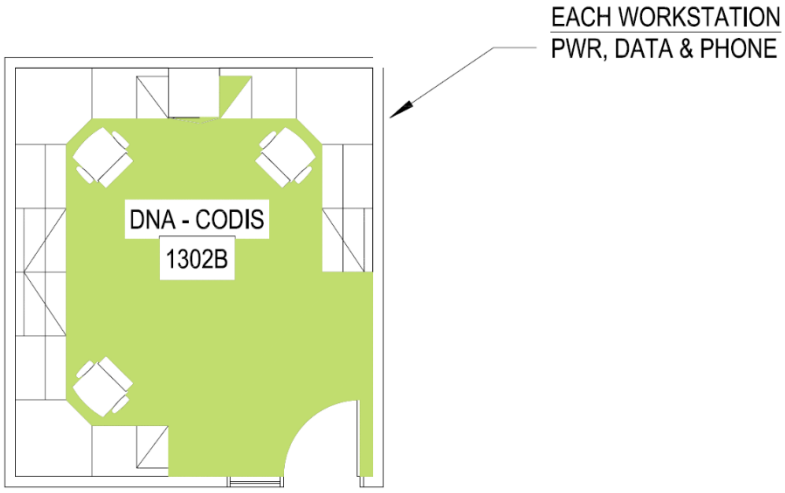


Room 1300-1
DNA Supervisor – 120 square feet
(Typical Private Office-Refer to Appendix 2 for additional requirements)

Typical for offices:
1301-2 DNA Supervisor Office – 120 square feet
1301-3 DNA Supervisor Office – 120 square feet



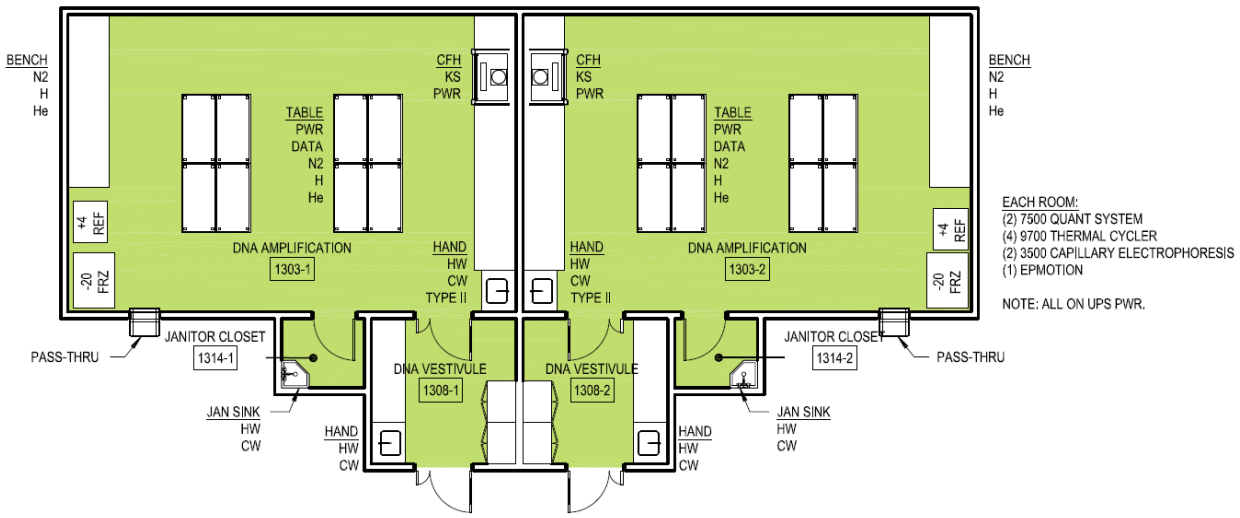
Room 1302A
DNA Open Office
- Thirty-six 8x8 cubicle workstations
- Card Reader Access
- See Appendix Two for cubicle requirements



Room 1302B

DNA CODIS Room

- One closed office for three 6'x8' cubicle workstations
- Card Reader Access
- Wall mounted whiteboard
- Electrical for an additional computer and barcode scanner
- See Appendix Two for cubicle requirements



Rooms 1303-1, 1303-2

DNA Amplification

- Electrical: 220V 30-amp 1 phase minimum outlets - 10 in each room; 11 - 110V duplex outlets in each room, three duplexes under countertop (for refrigerators)
- Negative air pressure (alarmed), temperature control
- Lab Doors with vision panels
- Millwork:
  - Mobile tables; 4'x 4' acid/bleach/chemical-resistant bench top on casters
  - 3' deep chemical resistant benches (with door and drawers/cabinets below) located along all walls expect wall with door to vestibule.
  - 6' long countertop high enough (3'H) to house two small laboratory refrigerators under the countertop
- Data/Tele: Receptacle above 6' countertop, receptacle by each 220V
- Floor: acid resistant that accommodate movement of lab stools with wheels (no textured hindrances) and not slippery when wet
- One 48" chemical fume hood in each amplification room – cutout for leg space under hood
- 4 leg spaces cut out (2 per side) under counter for analyst workspace where instruments/computers are situated
- One hand sink in each room; tap water
- Gas with stainless steel tubing: nitrogen, hydrogen, helium
- Window from DNA Lab (1306) to DNA Amplification (1303) for each room
- Fire control: clean agent fire suppression
- Deionized water and gas supply lines needed
- Equipment (per room, by DOJ)
  - 7500 Quant System (2)
  - 9700 Thermal Cycler (4).
  - 3130xl Capillary Electrophoresis (2)
  - epMotion (1)
- Total approximate power usage: 116,953 kWh per month.

ROOM NAME:	DNA AMPLIFICATION	**BSL:**	2
AREA NUMBER:	1303-1, 1303-2	**ISO CLASS:**	NONE
DEPARTMENT:	DNA		
UNIT:	DNA	**LAB TYPE:**	LAB
ADJACENCIES:			
Department			
Area Number	1308, 1314		

UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV
Staff Count	2	Summer Min & Max		Quantity	1
ARCHITECTURAL		Winter Min & Max		Size	4'-0"
Floor Material	SHEET	Occupied Humidity		Sash height	18"
Base	RWB	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	NONE
Height	10'-0"	Winter Min & Max		Cup sink / Water	NONE
Door Type	LAB	Un-Occupied Humidity		Storage Below	KS
Vision Panel	YES	Summer Min & Max		Electrical	YES
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	N/A	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	10
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	HAND	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	16" x 14" x 10"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	YES
Services	CW, HW, TYPE 2	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	YES
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	YES	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	TYPE 2	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	YES	**SECURITY**		Timer Control	NONE
Waste	SANITARY	Door Access Control (Type)	CR	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	YES	**COMMUNICATIONS**		System Type	PREACTION
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	VESDA
Other	He, H	Data / Telephone	YES	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	YES

Rooms 1308-1 and 1308-2

DNA Vestibule

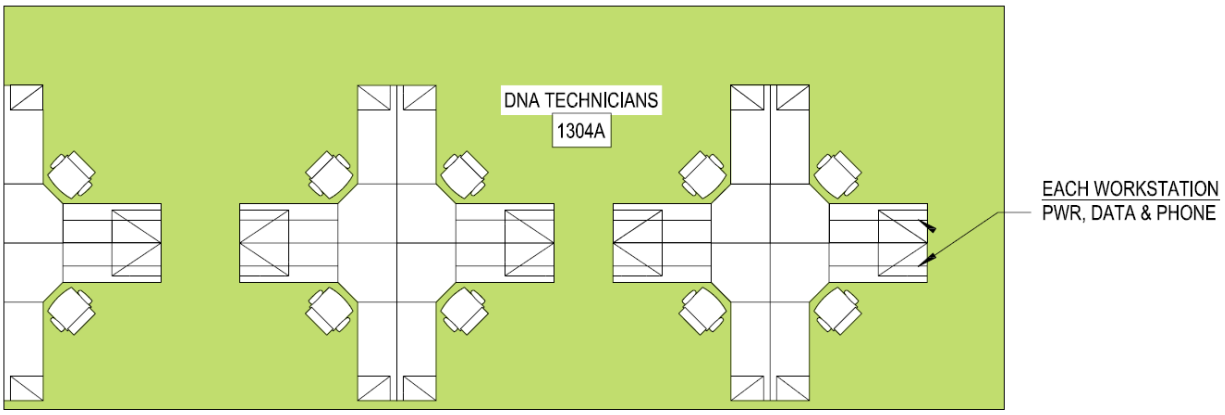
- Designed to prevent infiltration
- Floor: Acid-resistant and not slippery when wet
- Entry point:
  - Two from DNA Office (1302) into DNA Lab (1306)
    - Each with two doors containing vision panels
  - One from Evidence Technician Cubicles (1304) into DNA Lab (1306)
    - Two doors containing vision panels
  - One from Main Hallway into DNA Lab (1306) –
    - Two doors containing vision panels
  - One from DNA Lab (1306) into DNA Amplification (1303)
    - Two doors containing vision panels
- Outside each vestibule is a 3'D x 5-7'L closet for lab coats
- Negative air pressure
- One hand sink in each
- 10'-0" ceiling height
- Card reader access
- Lab coat closets located adjacent to DNA vestibules in DNA Lab (1306) with sliding doors
- Standard AC/Heat with 65-75 degrees, 30%-50% relative humidity
- Fire Control: VESDA smoke detection and pre-action sprinklers

MECHANICAL	See Bldg. Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	6
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	4 ACH

Rooms 1314-1 and 1314-2

Janitor/Supply Closet

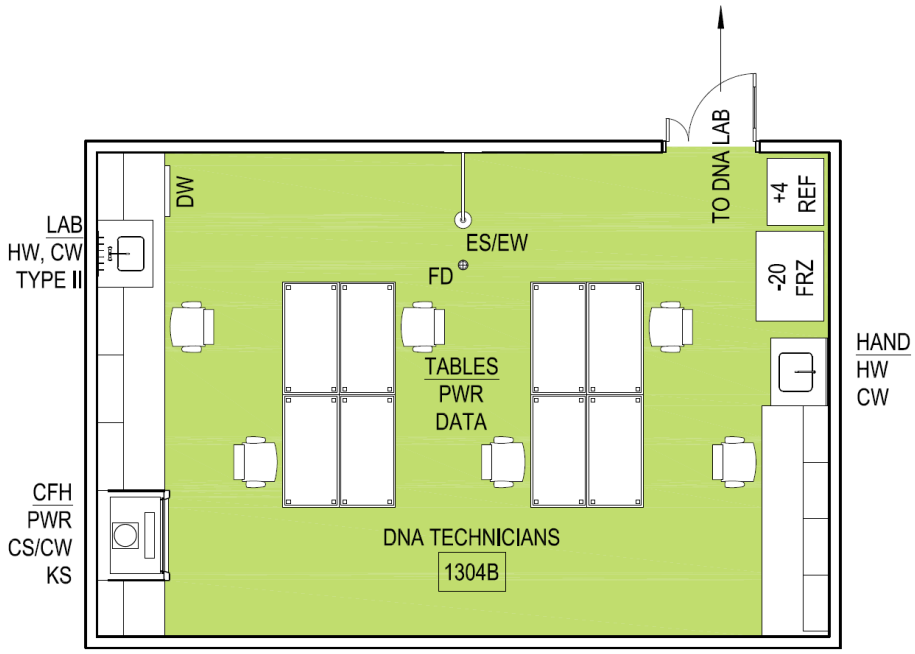
- Floor: Acid-resistant and not slippery when wet
- Mop sink
- Located within the DNA Amplification room (1303)
- Shelving along one wall for storage of cleaning supplies



Room 1304A

DNA Technicians Office

- Ten 8x8 Cubicle Workstations
- Card Reader Access
- Refer to Appendix two for cubicle requirements
- Area adjacent to DNA Open Office (1302A) and separated by floor to ceiling divider panel with 2’ of glass near ceiling of each divider panel and 5’ opening (no door)
- Two –way entry from DNA Technician Office (1304A) into DNA Vestibule (1308) – door with window



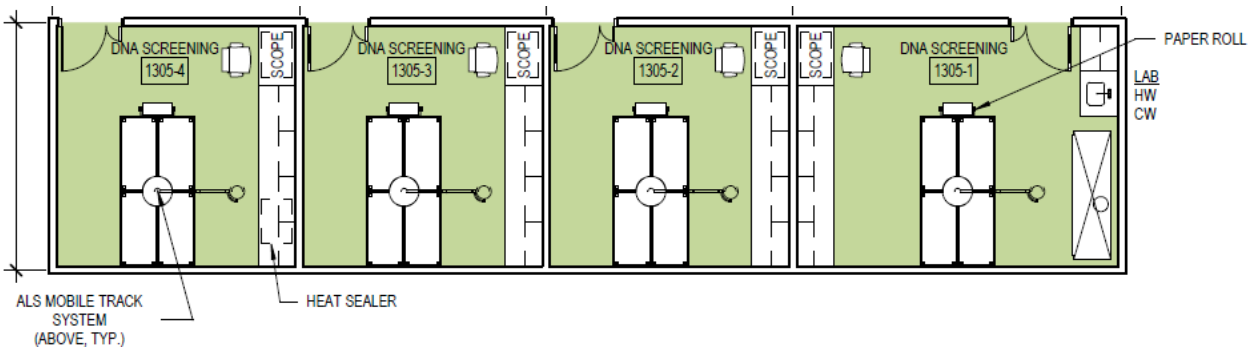
Room 1304B

DNA Technicians Lab

- Two–way entry from DNA vestibule (1308) into DNA Technician Lab space (1304B)
- Floor: Lab space portion with acid-resistant floors that accommodate movement of lab stools with wheels (no textured hindrances) and not slippery when wet
- Electrical: standard power/lighting per occupancy type, power per equip
- Tele/Data: two receptacles at (near) computer work area (space/area large enough to house computer equipment and room for one person to work)
- Acid/bleach/chemical-resistant countertops around perimeter of room – cutout for 48" chemical fume hood
- Millwork:
  - Mobile 5' x 4' prep table on casters (acid/bleach/chemical-resistant tops) matching cabinetry and
- Wall mounted cabinetry, mounted drying rack
- One 48" standard fume hood
- 1 hand sink (tap water), 1 acid-resistant sink (Type 1 water), 1 dishwasher (Type 2 water), eyewash/shower
- Floor drain
- Deionized water and gas supply lines needed
- Fire Control: VESDA smoke detection and pre-action sprinklers
- Equipment (by DOJ)
  - UV Crosslinker (2)
  - Refrigerator
  - Freezer
  - Fume Hood

- Total approximate power usage 48,000 kWh per month

ROOM NAME:	DNA TECHNICIANS LAB		**BSL:**	2	
AREA NUMBER:	1304B		**ISO CLASS:**	NONE	
DEPARTMENT:	DNA				
UNIT:	DNA		**LAB TYPE:**	LAB SUPPORT	
ADJACENCIES:					
Department					
Area Number	1306, 1312				
UTILIZATION		**MECHANICAL**	See Bldg. Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV
Staff Count	6	Summer Min & Max		Quantity	1
ARCHITECTURAL		Winter Min & Max		Size	4'-0"
Floor Material	SHEET	Occupied Humidity		Sash height	18"
Base	RWB	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	NONE
Height	10'-0"	Winter Min & Max		Cup sink / Water	YES / CW
Door Type	LAB	Un-Occupied Humidity		Storage Below	KS
Vision Panel	YES	Summer Min & Max		Electrical	YES
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	NONE
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A
Casework		Pressure Control		Sash height	N/A
Material	METAL	Directional	Negative	Airflow	N/A
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A
Storage		Filtration MERV		Static Pressure	N/A
Base Cabinets	YES	Supply	14	Piped Services	N/A
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	HAND	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	16" x 14" x 10"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	YES
Services	CW, HW	Flow	N/A	Conditioned Power	NONE
Sink Type	LAB	Pressure Rating	N/A	UPS	YES
Size	18" x 14"x 12"	Static Pressure	N/A	Explosion Proof	NONE
Material	EPOXY	Supply Temp	N/A	GFCI Outlets	YES
Services	CW, HW, TYPE 2	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	YES	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	TYPE 1	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	YES	**SECURITY**		Timer Control	NONE
Waste	SANITARY	Door Access Control (Type)	NONE	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	1 PER 4 LF BENCH	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	YES



Room 1305-1, 1305-2, 1305-3 and 1305-4

DNA Screening Rooms

- Floor: Lab space portion with acid-resistant floors that accommodate movement of lab stools with wheels and not slippery when wet
- Electrical: standard power/lighting per occupancy type, power per equip
- Doors: pocket doors with locking capabilities at entry between DNA Screening (1305) and DNA Lab (1306)
- Ceiling: drop ceiling with noise reducing tiles – except in area of tracking system
- Millwork:
  - 5' x 10' permanent table (approx. 3'H with acid/bleach/chemical resistant tabletop)
  - ALS mobile track system from ceiling with lighting in each screening room – see provided photos
  - Seated bench at least 4' x 2'6" for stereomicroscopes in each room
  - Mounted paper roller/holder hardware underneath the table on one 5'end for 4' rolled laboratory paper
  - Box drawer on side adjacent to mounted paper underneath tabletop
  - 1'H x 2.5'D x 1.5'L station with acid/bleach/chemical resistant bench top and box drawers for running screening tests
  - Mounted or suspended laptop holder to securely hold laptop for keyboard use near examination table
- Wall-mounted 4' x 3' long open-shelving units on wall
- Door-to-door cabinetry over bench top, but not above where stereomicroscope is to be situated along wall
- Outside of screening room along designated wall – 3'H x 2'D x 5'L table with acid/bleach/chemical-resistant bench top
- On each benchtop a 2'+ hands-free heat sealer (foot operation hardware)
- Power: 8'-0" O.C..; additional track lighting over table with dimmable features; task lighting for close examination – see provided photos
- HVAC: low airflow above/near examination areas
- One 96" biological fume hood in large screening room
- Fire control: clean agent fire suppression
- Tele/Data: BEAST network access in each screening room
- Equipment (per room) (supplied by DOJ)
  - Alternative light source
  - Stereoscope
- Total approximate power usage 24,000 kWh per month

ROOM NAME:	DNA SCREENING	**BSL:**	2
AREA NUMBER:	1305-1	**ISO CLASS:**	NONE
DEPARTMENT:	DNA		
UNIT:	DNA	**LAB TYPE:**	LAB SUPPORT
ADJACENCIES:			
Department			
Area Number	1306		

UTILIZATION		**MECHANICAL**	See Bldg.Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE
Staff Count	1	Summer Min & Max		Quantity	N/A
ARCHITECTURAL		Winter Min & Max		Size	N/A
Floor Material	SHEET	Occupied Humidity		Sash height	N/A
Base	RWB	Summer Min & Max		Airflow	N/A
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A
Vision Panel	NONE	Summer Min & Max		Electrical	N/A
Seals	YES	Winter Min & Max		Recirculating Hood (Type)	A2
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	1
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	6'-0"
Casework		Pressure Control		Sash height	TBD
Material	WOOD	Directional	Negative	Airflow	TBD
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	TBD
Storage		Filtration MERV		Static Pressure	TBD
Base Cabinets	YES	Supply	14	Piped Services	NONE
Wall Cabinets	YES	Exhaust	N/A	Electrical	NONE
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	18" x 14"x 12"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	NONE
Services	CW, HW	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	NONE	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	NONE	**SECURITY**		Timer Control	NONE
Waste	NONE	Door Access Control (Type)	NONE	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT
Other	NONE	Data / Telephone	YES	**MONITORING**	
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagir	YES	Equipment	NONE

ROOM NAME:	DNA SCREENING			**BSL:**	2		
AREA NUMBER:	1305-2, 1305-3, 1305-4			**ISO CLASS:**	NONE		
DEPARTMENT:	DNA						
UNIT:	DNA			**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:							
Department							
Area Number	1306						
UTILIZATION		**MECHANICAL**	See Bldg.Sys. Criteria	**HOODS**			
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE		
Staff Count	1	Summer Min & Max		Quantity	N/A		
ARCHITECTURAL		Winter Min & Max		Size	N/A		
Floor Material	SHEET	Occupied Humidity		Sash height	N/A		
Base	RWB	Summer Min & Max		Airflow	N/A		
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A		
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A		
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A		
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A		
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A		
Vision Panel	NONE	Summer Min & Max		Electrical	N/A		
Seals	YES	Winter Min & Max		Recirculating Hood (Type)	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	WOOD	Directional	Negative	Airflow	N/A		
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Base Cabinets	YES	Supply	14	Piped Services	N/A		
Wall Cabinets	YES	Exhaust	N/A	Electrical	N/A		
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A		
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	N/A		
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A		
Bench top		Room Noise Level	N/A	Snorkel	N/A		
Material	EPOXY	Process Chilled Water		**ELECTRICAL**			
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH		
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	NONE	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	N/A	Delta T	N/A	Special Outlet Config	NONE		
Material	N/A	Heated Process Water		Standby Pwr (Generator)	NONE		
Services	N/A	Flow	N/A	Conditioned Power	NONE		
Sink Type	NONE	Pressure Rating	N/A	UPS	NONE		
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE		
Material	N/A	Supply Temp	N/A	GFCI Outlets	NONE		
Services	N/A	Delta T	N/A	Clocks	YES		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	NONE	Flow	N/A	Type	LED		
Eyewash	NONE	Pressure	N/A	Foot-candle	100 (50+TASK)		
Floor Drain	NONE	Condensate Return	N/A	Dimming / Multi-Leve	1% DIM		
Pure Water Type	NONE	Max Backpressure	N/A	Zoning Control	NONE		
Local Polisher	NONE	**SECURITY**		Timer Control	NONE		
Waste	NONE	Door Access Control (Type)	NONE	Occupancy Sensor	YES		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	NONE	Video Surveillance	NONE	Task Lighting	YES		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	WET		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	HEAT		
Other	NONE	Data / Telephone	YES	**MONITORING**			
		Wall Mounted Telephone	1	Temperature/ Humidi	NONE		
		Intercom System (PA) / Pagir	YES	Equipment	NONE		

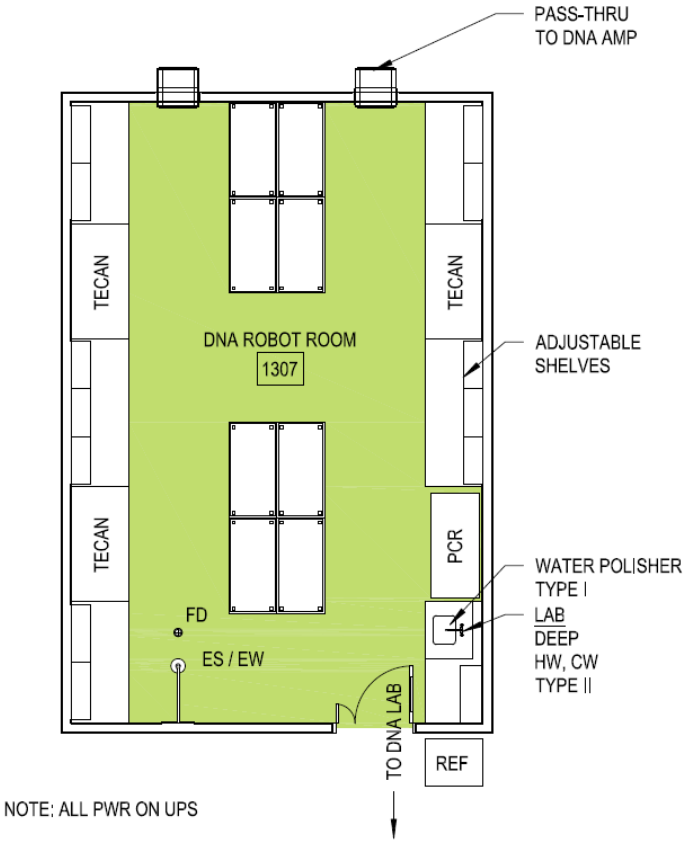
Room 1306

DNA Lab – Forty-Four Workbenches

- Floor: Acid/bleach/chemical-resistant that accommodate lab stools with wheels and not slippery when wet
- Tele/Data: one per workbench; hardwired and wireless network capability at each workbench (3 data per analyst bench); multiple 4-data/network areas for computer workstation (for LIMS); 6 phones throughout room
- 44 workbenches 5'-6"L x 6'D with connected 8'L x2'6"D workbenches – refer to provided bench drawing (1306)
- Millwork:
  - Benches: Acid/bleach/chemical-resistant countertops with double-door, lockable, 3'H base cabinets with 2 shelves (top shelf ½ the depth as the bottom shelf across entire length of cabinet) at ends opposite sink (open leg space on main bench length) with moveable locked cart that can be placed under counter leg space
    - Four of the 44 benches to have rising capabilities – the acid/bleach/chemical resistant countertop can be adjusted to greater than 36"
  - One table (2'D x 30"H) attached to wall with seating for 3 standard stations, acid resistant countertop along wall between DNA Technician Reagent Prep Space (1304) and DNA Lab (1306) for microscope viewing with leg space underneath, and approx. 3' seat clearance surrounded by drawer cabinetry (18" L x 8-9"H)
  - One table (2'D x 30"H) attached to wall with seating for 2 standard stations, acid/bleach/chemical resistant countertop along exterior wall of DNA Screening (1305) (adjacent

to DNA Robot Room) for microscope viewing with leg space underneath, and approx. 3' seat clearance surrounded by drawer cabinetry (18" L x 8-9"H)
    - One table (2'D x 30"H) with seating for 4 standard stations, acid/bleach/chemical resistant countertop along exterior wall of New Technology Room (1315) for microscope viewing with leg space underneath, and approx. 3' seat clearance surrounded by drawer cabinetry (18" L x 8-9"H)
    - One table (2'D x 30"H) with seating for 3 standard stations, acid/bleach/chemical resistant countertop along exterior wall of DNA Conference Room (1317) in laboratory space for microscope viewing with leg space underneath, and approx. 3' seat clearance surrounded by drawer cabinetry (18" L x 8-9"H)
    - One table (2'D x 30"H) with acid resistant countertop along wall of DNA Lab (1306) between DNA vestibules (1308) leg space underneath, and approx. 3' seat clearance surrounded by drawer cabinetry (18" L x 8-9"H)
- Power: 4 to 6'-0" o.c. at workbench; 20 additional duplex outlets over standard
- Five 96" standard fume hoods with cutouts underneath for leg space, two 96" biological fume hoods, negative pressure with cutouts underneath for leg space
- 1 hands-free acid-resistant sink per two workbenches; 2 deep acid/bleach/chemical-resistant sinks, Type 1 water, 5 eyewash/3 shower in each room, floor drains
    - 5 eyewash stations incorporated with 5 of the 20 sinks throughout lab for easy access from any workbench
- Fire control: VESDA smoke detection and pre-action sprinklers D-water and gas supply lines needed
- Equipment (supplied by DOJ):
    - Incubators (8)
    - UV Crosslinkers (2)
    - Microscopes (10)
    - Refrigerators
    - Freezers
    - Heat blocks (20)
    - Centrifuges (40)
    - Vortexes (40)
    - Fume hoods
- Total approximate power usage: 276,192 kWh per month

ROOM NAME:	DNA LAB		**BSL:**	2	
AREA NUMBER:	1306		**ISO CLASS:**	NONE	
DEPARTMENT:	DNA				
UNIT:	DNA		**LAB TYPE:**	LAB	
ADJACENCIES:					
Department					
Area Number	1304B, 1305, 1307, 1310, 1313				
UTILIZATION		**MECHANICAL**	See Bldg.Sys. Criteria	**HOODS**	
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	VAV
Staff Count	30	Summer Min & Max		Quantity	4
ARCHITECTURAL		Winter Min & Max		Size	5'-0"
Floor Material	SHEET	Occupied Humidity		Sash height	18"
Base	RWB	Summer Min & Max		Airflow	100 FPM
Partition Type	GWB	Winter Min & Max		Face Velocity	80-120 FPM
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	<0.1
Ceiling Type	APC	Summer Min & Max		Piped Services	NONE
Height	10'-0"	Winter Min & Max		Cup sink / Water	NONE
Door Type	LAB	Un-Occupied Humidity		Storage Below	KS
Vision Panel	YES	Summer Min & Max		Electrical	YES
Seals	N/A	Winter Min & Max		Recirculating Hood (Type)	A2
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	2
Cased Opening	N/A	Equip Power Density (watt/sf	6	Size	6'-0"
Casework		Pressure Control		Sash height	TBD
Material	METAL	Directional	POSITIVE	Airflow	TBD
Fixed or Mobile	FIXED	Active	N/A	Face Velocity	TBD
Storage		Filtration MERV		Static Pressure	TBD
Base Cabinets	YES	Supply	14	Piped Services	NONE
Wall Cabinets	YES	Exhaust	N/A	Electrical	NONE
Glass Fronts	NONE	Air Recurc or Exhaust	Exh	Point Exhaust	
Swinging or Sliding	SWINGING	EHS Min Air Changes		Quantity	N/A
Shelves Wall or Benc	BENCH	Occupied	6 ACH	Size	N/A
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A
Bench top		Room Noise Level	N/A	Snorkel	N/A
Material	EPOXY	Process Chilled Water		**ELECTRICAL**	
Color	TBD	Flow	N/A	110V, 20A, 1 Phase	1 PER 2 LF BENCH
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1 Phase	NONE
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE
Size	18" x 14"x 12"	Delta T	N/A	Special Outlet Config	NONE
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	YES
Services	CW, HW	Flow	N/A	Conditioned Power	NONE
Sink Type	NONE	Pressure Rating	N/A	UPS	YES
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES
Services	N/A	Delta T	N/A	Clocks	YES
Safety		Process Steam Equipment		**LIGHTING**	
Emergency Shower	NONE	Flow	N/A	Type	LED
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Leve	10% DIM
Pure Water Type	TYPE 2	Max Backpressure	N/A	Zoning Control	NONE
Local Polisher	YES	**SECURITY**		Timer Control	NONE
Waste	ACID	Door Access Control (Type)	NONE	Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE
Air	NONE	Video Surveillance	NONE	Task Lighting	YES
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**	
Nitrogen	NONE	**COMMUNICATIONS**		System Type	PREACTION
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	VESDA
Other	NONE	Data / Telephone	1 PER 4 LF BENCH	**MONITORING**	
		Wall Mounted Telephone	6	Temperature/ Humidi	NONE
		Intercom System (PA) / Pagi	YES	Equipment	YES



Room 1307

DNA Robot Room

- Floor: Acid/bleach/chemical-resistant that accommodate lab stools with wheel and not slippery when wet
- Millwork:
  - Acid/bleach/chemical resistant counter tops (36"D) on perimeter of room with 3' cut out areas between counter and wall that has the door (room for fridges and prep station)
  - Cabinets and drawers necessary for storage under the perimeter acid/bleach/chemical resistant counter tops with leg space cutouts under each 6' instrument area (3 total areas)
  - Two permanent islands in center of room (8'L x 4'D x 3'H) with cabinets and drawers under islands for storage
  - Shelving necessary for storage – no shelving in each 6' instrument area
- At least 5' aisles between island and perimeter countertops
- Door – 3' W with side glass panel from DNA Robot Room (1307) to DNA Lab (1306)
- One deep acid-resistant sink, Type 1 water, eyewash/shower
- Tele/Data: Hardwired network and standalone capability at each instrument; 2 phone and 5 data (each near instrument and another for printer)
- Standard AC/Heat with 65-75 degrees, 30%-50% relative humidity
- Fire control: VESDA smoke detection and pre-action sprinklers
- Equipment (supplied by DOJ):
  - Tecan automated platform (3)
  - Centrifuges (5)
    - Total approximate power usage: 57,600 kWh per month

ROOM NAME:	DNA ROBOT ROOM			**BSL:**	2		
AREA NUMBER:	1307			**ISO CLASS:**	NONE		
DEPARTMENT:	DNA						
UNIT:	DNA			**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:							
Department							
Area Number	1306						
UTILIZATION		**MECHANICAL**	See Bldg.Sys. Criteria	**HOODS**			
Schedule of Use	12 HOURS	Occupied Temperature		Exhausted Hood (Type)	NONE		
Staff Count	4	Summer Min & Max		Quantity	N/A		
ARCHITECTURAL		Winter Min & Max		Size	N/A		
Floor Material	SHEET	Occupied Humidity		Sash height	N/A		
Base	RWB	Summer Min & Max		Airflow	N/A		
Partition Type	GWB	Winter Min & Max		Face Velocity	N/A		
Paint	SEMI-GLOSS	Un-Occupied Temperature		Static Pressure	N/A		
Ceiling Type	APC	Summer Min & Max		Piped Services	N/A		
Height	10'-0"	Winter Min & Max		Cup sink / Water	N/A		
Door Type	LAB	Un-Occupied Humidity		Storage Below	N/A		
Vision Panel	YES	Summer Min & Max		Electrical	N/A		
Seals	NONE	Winter Min & Max		Recirculating Hood (Type)	NONE		
Overhead Door	N/A	Light Power Density (watt/sf)	1.4	Quantity	N/A		
Cased Opening	N/A	Equip Power Density (watt/sf)	6	Size	N/A		
Casework		Pressure Control		Sash height	N/A		
Material	METAL	Directional	Negative	Airflow	N/A		
Fixed or Mobile	FIXED / MOBILE	Active	N/A	Face Velocity	N/A		
Storage		Filtration MERV		Static Pressure	N/A		
Base Cabinets	YES	Supply	14	Piped Services	N/A		
Wall Cabinets	NONE	Exhaust	N/A	Electrical	N/A		
Glass Fronts	NONE	Air Recirc or Exhaust	Exh	Point Exhaust			
Swinging or Sliding	NONE	EHS Min Air Changes		Quantity	N/A		
Shelves Wall or Bench	WALL / BENCH	Occupied	6 ACH	Size	N/A		
Glassware Storage	NONE	Un-Occupied	4 ACH	Airflow	N/A		
Rack Shelving	NONE	Vibration Sensitivity	N/A	Static Pressure	N/A		
Bench top		Room Noise Level	N/A	Snorkel	N/A		
Material	EPOXY	Process Chilled Water		**ELECTRICAL**			
Color	TBD	Flow	N/A	110V, 20A, 1Phase	1PER 2 LF BENCH		
Thickness	1"	Pressure Rating	N/A	208V, 30A, 1Phase	NONE		
PLUMBING		Static Pressure	N/A	208V, 30A, 3 Phase	NONE		
Sink Type	LAB	Supply Temp	N/A	480V, 100A, 3 Phase	NONE		
Size	DEEP	Delta T	N/A	Special Outlet Config	YES		
Material	EPOXY	Heated Process Water		Standby Pwr (Generator)	YES		
Services	CW, HW, TYPE 2	Flow	N/A	Conditioned Power	NONE		
Sink Type	NONE	Pressure Rating	N/A	UPS	YES		
Size	N/A	Static Pressure	N/A	Explosion Proof	NONE		
Material	N/A	Supply Temp	N/A	GFCI Outlets	YES		
Services	N/A	Delta T	N/A	Clocks	YES		
Safety		Process Steam Equipment		**LIGHTING**			
Emergency Shower	YES	Flow	N/A	Type	LED		
Eyewash	YES	Pressure	N/A	Foot-candle	100 (50+TASK)		
Floor Drain	YES	Condensate Return	N/A	Dimming / Multi-Level	10% DIM		
Pure Water Type	TYPE 1	Max Backpressure	N/A	Zoning Control	NONE		
Local Polisher	YES	**SECURITY**		Timer Control	NONE		
Waste	ACID	Door Access Control (Type)	NONE	Occupancy Sensor	YES		
Piped Services (Press/Qual/Vol)		Intrusion Detection	NONE	Daylighting Sensor	NONE		
Air	NONE	Video Surveillance	NONE	Task Lighting	YES		
Vacuum	NONE	Other	N/A	**FIRE PROTECTION**			
Nitrogen	NONE	**COMMUNICATIONS**		System Type	PREACTION		
Pure (Zero) Air	NONE	Audio/Video	NONE	Smoke or Heat Detectors	VESDA		
Other	NONE	Data / Telephone	1PER 4 LF BENCH	**MONITORING**			
		Wall Mounted Telephone	2	Temperature/ Humidit	NONE		
		Intercom System (PA) / Paging	YES	Equipment	YES		

Rooms 1308-3 and 1308-4

DNA Vestibule

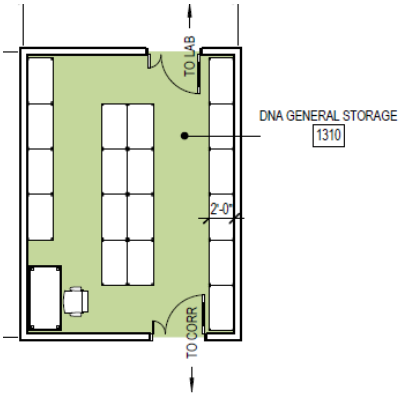
- Designed to prevent infiltration
- Floor: Acid-resistant and not slippery when wet
- Entry point:
  - Two from DNA Office (1302) into DNA Lab (1306)
    - Each with two doors containing vision panels
  - One from Evidence Technician Cubicles (1304) into DNA Lab (1306)
    - Two doors containing vision panels
  - One from Main Hallway into DNA Lab (1306) –
    - Two doors containing vision panels
  - One from DNA Lab (1306) into DNA Amplification (1303)
    - Two doors containing vision panels
- Outside each vestibule is a 3'D x 5-7'L closet for lab coats
- Negative air pressure
- One hand sink in each
- 10'-0" ceiling height
- Card reader access
- Lab coat closets located adjacent to DNA vestibules in DNA Lab (1306) with sliding doors
- Standard AC/Heat with 65-75 degrees, 30%-50% relative humidity
- Fire Control: VESDA smoke detection and pre-action sprinklers

MECHANICAL	See Bldg.Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	6
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	4 ACH

Room 1309

DNA Freezer

- Area designated for three (3) industrial standalone freezers (supplied by DOJ) in DNA Lab (1306) – not an independent room
- Floor drainage immediately under freezers
- Power: 220V outlet – 3 total; 3 - 110V duplex outlets in area
- Total approximate power usage: 4,8000 kWh per month

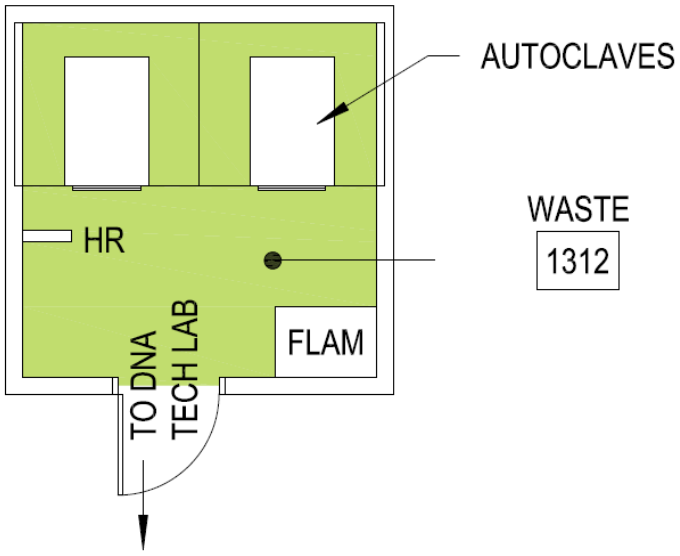


Room 1310

General Storage

- Floor: Acid-resistant and not slippery when wet
- Entry points:
  - From lab: two-way entry into DNA General Storage (1310).
  - To hallway: two-way entry into DNA General Storage (1310).
- Doors (Two): two standard doors without windows into DNA General Storage (1310)
- Card reader at entry door to hallway.
- Metal rack shelving around perimeter and down center of room – Center shelving to be mobile
- 2 data receptacles for computer workstation
- 10'-0" ceiling height

MECHANICAL	See Bldg.Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	6
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	4 ACH

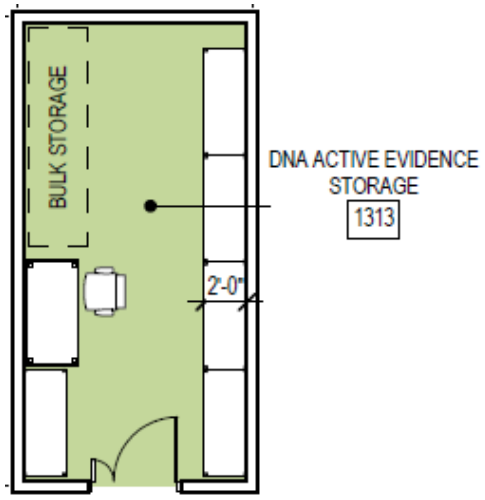


Room 1312

Waste

- Door: one 3'W door without window
- Floor: Acid-resistant and not slippery when wet
- Flammable storage cabinet (by Lessor)
- Electrical: Two 220V30 Amp electrical units, 4 - 110V 20 Amp duplexes
- Exhaust HVAC (ventilation for fumes), humidity and temperature controlled
  - This room adjacent to 1304 chemical fume hood
- Upper wall cabinets (door-to-door with 2 shelves in each cabinet)
- Deionized water (system supply plumbed from main water service room), hose reel and floor drain
- Total approximate power usage: 14,400 kWh per month

MECHANICAL	See Bldg.Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	12
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	4 ACH

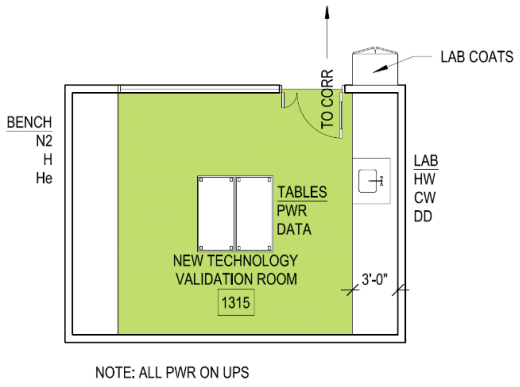


Room 1313

DNA Active Evidence Storage

- Walls: concrete block floor to deck and painted
- Floor: Acid/bleach/chemical-resistant and not slippery when wet
- Door: entry between 200 SF DNA Vestibule (1308) and DNA Active Evidence Storage (1313) – no window
- 5'W shelves along wall and some open shelving along rest of walls that reaches 7' high with various shelf heights.
- Center 3.5'L x 2'D x 2.5'H high-mobile table for seated workstation with open leg spaced computer workstation
- HVAC: Extra cooling as necessary; temperature monitoring equipment to control temp. and humidity
- Tele/Data: 2 Tele/Data receptacles at workstation space
- Electrical: 2 duplexes per wall
- Card Reader at entry
- 10'-0" Ceiling height
- Fire Control: VESDA smoke detection and pre-action sprinklers

ROOM NAME:	DNA EVIDENCE STORAGE			**BSL:**	2		
AREA NUMBER:	1313			**ISO CLASS:**	NONE		
DEPARTMENT:	DNA						
UNIT:	DNA			**LAB TYPE:**	LAB SUPPORT		
ADJACENCIES:							
Department							
Area Number	1306						
UTILIZATION			**MECHANICAL**			**HOODS**	
Schedule of Use	12 HOURS		Occupied Temperature			Exhausted Hood (Type)	NONE
Staff Count	1		Summer Min & Max	65/68°F		Quantity	N/A
ARCHITECTURAL			Winter Min & Max	65/68°F		Size	N/A
Floor Material	SHEET		Occupied Humidity			Sash height	N/A
Base	RWB		Summer Min & Max	30-50%		Airflow	N/A
Partition Type	GWB		Winter Min & Max	30-50%		Face Velocity	N/A
Paint	SEMI-GLOSS		Un-Occupied Temperature			Static Pressure	N/A
Ceiling Type	APC		Summer Min & Max	65/68°F		Piped Services	N/A
Height	10'-0"		Winter Min & Max	65/68°F		Cup sink / Water	N/A
Door Type	LAB		Un-Occupied Humidity			Storage Below	N/A
Vision Panel	NONE		Summer Min & Max	30-50%		Electrical	N/A
Seals	N/A		Winter Min & Max	30-50%		Recirculating Hood (Type)	NONE
Overhead Door	N/A		Light Power Density (watt/sf)	1.4		Quantity	N/A
Cased Opening	N/A		Equip Power Density (watt/sf)	2		Size	N/A
Casework			Pressure Control			Sash height	N/A
Material	METAL		Directional	NEGATIVE		Airflow	N/A
Fixed or Mobile	MOBILE		Active	N/A		Face Velocity	N/A
Storage			Filtration MERV			Static Pressure	N/A
Base Cabinets	NONE		Supply	14		Piped Services	N/A
Wall Cabinets	NONE		Exhaust	N/A		Electrical	N/A
Glass Fronts	N/A		Air Recirc or Exhaust	Exh		Point Exhaust	
Swinging or Sliding	N/A		EHS Min Air Changes			Quantity	N/A
Shelves Wall or Benc	NONE		Occupied	6 ACH		Size	N/A
Glassware Storage	NONE		Un-Occupied	4 ACH		Airflow	N/A
Rack Shelving	YES		Vibration Sensitivity	N/A		Static Pressure	N/A
Bench top			Room Noise Level	N/A		Snorkel	N/A
Material	EPOXY		Process Chilled Water			**ELECTRICAL**	
Color	TBD		Flow	N/A		110V, 20A, 1 Phase	2
Thickness	1"		Pressure Rating	N/A		208V, 30A, 1 Phase	NONE
PLUMBING			Static Pressure	N/A		208V, 30A, 3 Phase	NONE
Sink Type	NONE		Supply Temp	N/A		480V, 100A, 3 Phase	NONE
Size	N/A		Delta T	N/A		Special Outlet Config	NONE
Material	N/A		Heated Process Water			Standby Pwr (Generator)	NONE
Services	N/A		Flow	N/A		Conditioned Power	NONE
Sink Type	NONE		Pressure Rating	N/A		UPS	NONE
Size	N/A		Static Pressure	N/A		Explosion Proof	NONE
Material	N/A		Supply Temp	N/A		GFCI Outlets	NONE
Services	N/A		Delta T	N/A		Clocks	NONE
Safety			Process Steam Equipment			**LIGHTING**	
Emergency Shower	NONE		Flow	N/A		Type	LED
Eyewash	NONE		Pressure	N/A		Foot-candle	30
Floor Drain	NONE		Condensate Return	N/A		Dimming / Multi-Leve	NONE
Pure Water Type	NONE		Max Backpressure	N/A		Zoning Control	NONE
Local Polisher	NONE		**SECURITY**			Timer Control	NONE
Waste	NONE		Door Access Control (Type)	CR		Occupancy Sensor	YES
Piped Services (Press/Qual/Vol)			Intrusion Detection	YES		Daylighting Sensor	NONE
Air	NONE		Video Surveillance	YES		Task Lighting	NONE
Vacuum	NONE		Other	N/A		**FIRE PROTECTION**	
Nitrogen	NONE		**COMMUNICATIONS**			System Type	PREACTION
Pure (Zero) Air	NONE		Audio/Video	NONE		Smoke or Heat Detectors	VESDA
Other	NONE		Data / Telephone	2		**MONITORING**	
			Wall Mounted Telephone	1		Temperature/ Humidi	YES
			Intercom System (PA) / Pagi	YES		Equipment	NONE



Room 1315

New Technology Validation Room

- Door: one lab door with vison panel from New Technology Validation Room (1315) to DNA Lab (1306)
- Floor: Acid/bleach/chemical -resistant and not slippery when wet
- Millwork:
  - Acid/bleach/chemical resistant countertop workbench with 5' x 5' moveable island (casters) to match built-in cabinetry/storage lab furniture (see next bullet)
  - Two sides of room to have acid/bleach/chemical resistant countertops the length of room with cabinetry and storage underneath
- Power: 8'-0" o.c.; 220V 30 Amp, 1 phase on bench and 13 - 110V duplex outlets
- 3 data receptacles
- HVAC: temperature controlled
- Card reader access
- Ability to dim lighting
- Outside room: seated chemical-resistant tabletop bench with drawer cabinetry and leg space underneath; 3'D closet for lab coats
- One acid-resistant sink and one deep acid-resistant sink
- Fire control: clean agent fire suppression
- Deionized water and gas supply lines needed.
- Emergency eye wash, shower and floor drain
- 10'-0" Ceiling height
- Potential for laboratory equipment

MECHANICAL	See Bldg.Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	30-50%
Winter Min & Max	30-50%
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	6
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	4 ACH

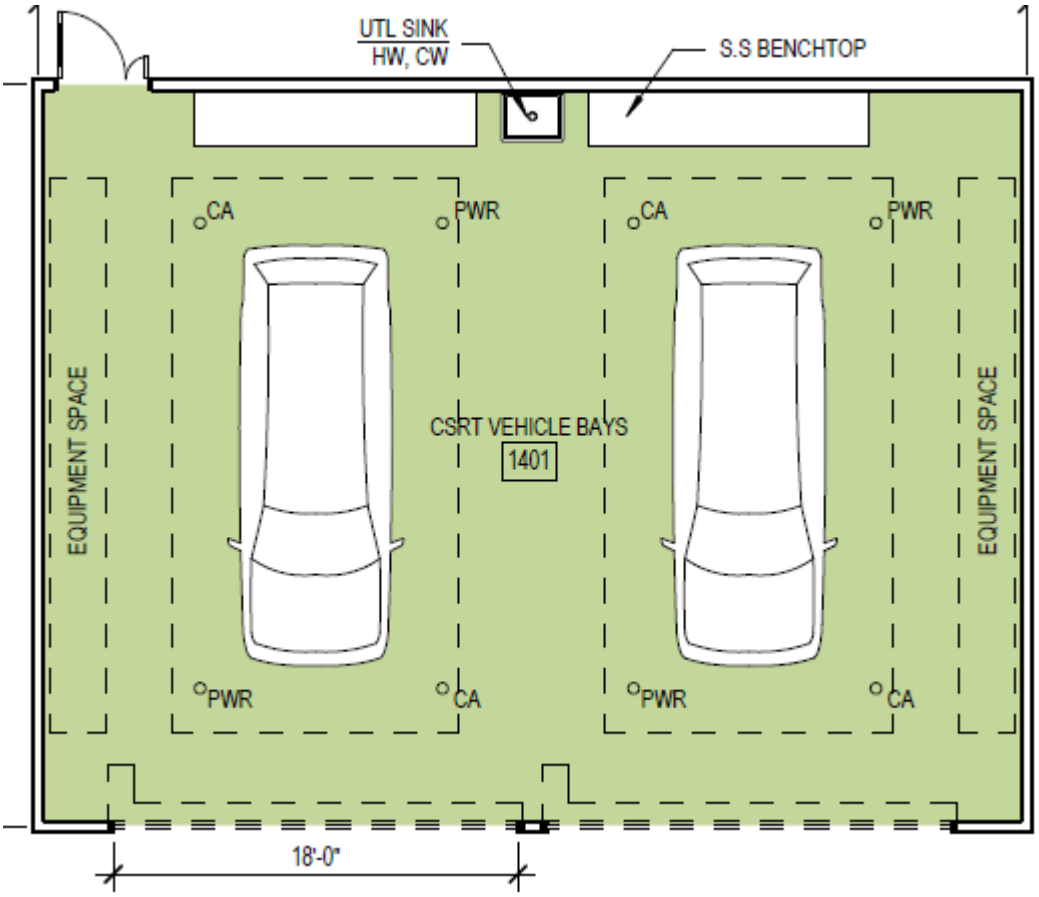
5. Crime Scene Response

The Crime Scene Response Team (CSRT) is a section of the Criminalistics group which provides technical assistance in crime scene investigations to law enforcement agencies throughout the State of Wisconsin on a 24-hour basis, every day of the year. The CSRT provides on-scene processing and documentation of crime scenes, recognize, collect, and preserve physical evidence that will yield reliable information to aid in the investigation. The CSRT provides courtroom testimony at criminal proceedings as a result of any technical assistance involving crime scene investigation, scene documentation, evidence collection, and specialized activities performed.

At a crime scene, the following services can be provided:

- Scene/evidence documentation using photography and/or video
- Scene/evidence documentation using laboratory notes and/or diagrams
- Evidence collection and preservation by processing a crime scene for latent prints, footwear, and tire track evidence
- Specialized evidence collection and packaging, e.g., biological fluids, hair, fibers, footwear impressions, tire impressions, tool marks, and other materials/substances of evidentiary value
- Bullet path trajectory examination

3.5 Crime Scene Response Team				
Area No.	Space Description	Square Footage Required	Staff Count	Comments
1401	CSRT Vehicle Bays	1,500	0	Two (2) vehicle bays each at 15' x 50'
1402	Office/Storage	300	2	Adjacent to 1403 and 1401
1403	Screening Room	440	0	Adjacent to CSRT Vehicle Bays (1401)
1404	Unisex Shower Room	110	0	One (1) shower. One () toilet. One (1) sink . Adjacent to CSRT Vehicle Bays (1401).
1405	Unisex Shower Room	110	0	One(1) shower. One (1) toilet. One (1) sink. Adjacent to CSRT Vehicle Bays (1401).
1406	CSRT Lockers	190		Shared locker room with 20 lockers and bench.
	ASF Totals	2,650	2	

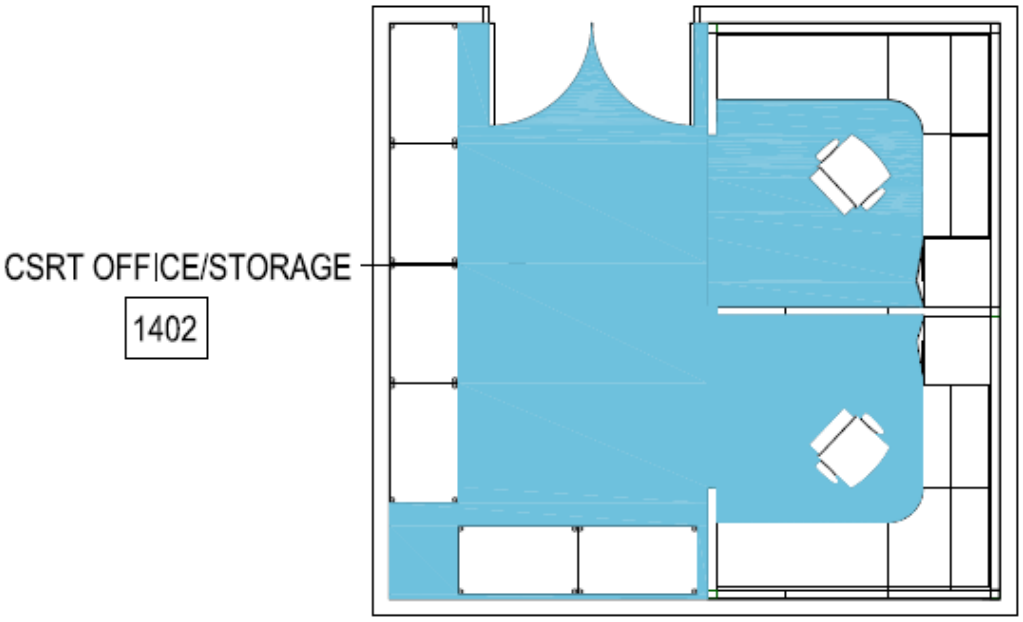


Room 1401

CSRT Vehicle Bays

- Two (2) vehicle bays (15’ x 50’). CSRT will require extended length bays to account for the pullout rack in the CSRT vehicle. Rolling garage doors equipped with card reader access and automatic garage door openers. The ceiling height in the vehicle bays will need to be 15’-0” clear for the raising of vehicles.
  - Ideally the two vehicle bays will be side-by-side on one end of the garage with a door and immediate access to the CSRT locker rooms and workspaces
- Four (4) large storage cabinets for consumables
- Two (2) large shelving units for storage (millwork)
- Built in cabinets with chemical resistant countertops at the back of each bay
- Safety sink with at least two (2) tubs and a safety shower/eye wash station
- Modular (rolling) stainless steel work bench with a 2.5'W x 5'L top) which holds tools and gives a movable working surface when processing cars and moves throughout the bays (supplied by DOJ)
- Large drying cabinet (supplied by DOJ)
- Refrigerator 18 cu. ft. (supplied by DOJ)
- Four (4) drop-down outlets – two (2) in each vehicle bay
- Eight (8) wall outlets (120V)
- One (1) data line in each vehicle bay
- Temperature, humidity, and air flow control for protection of electrical equipment
- Concrete floors, CMU walls with epoxy paint, and Lab door with vision panel.
- Floor drain in each bay (oil and grease waste) with a trench drain in the middle of the two bays in order to wash vehicles
- Card reader access

MECHANICAL	See Bldg.Sys. Criteria
Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Temperature	
Summer Min & Max	
Winter Min & Max	
Un-Occupied Humidity	
Summer Min & Max	
Winter Min & Max	
Light Power Density (watt/sf)	1.4
Equip Power Density (watt/sf)	6
Pressure Control	
Directional	Negative
Active	N/A
Filtration MERV	
Supply	14
Exhaust	N/A
Air Recurc or Exhaust	Exh
EHS Min Air Changes	
Occupied	6 ACH
Un-Occupied	4 ACH



Room 1402

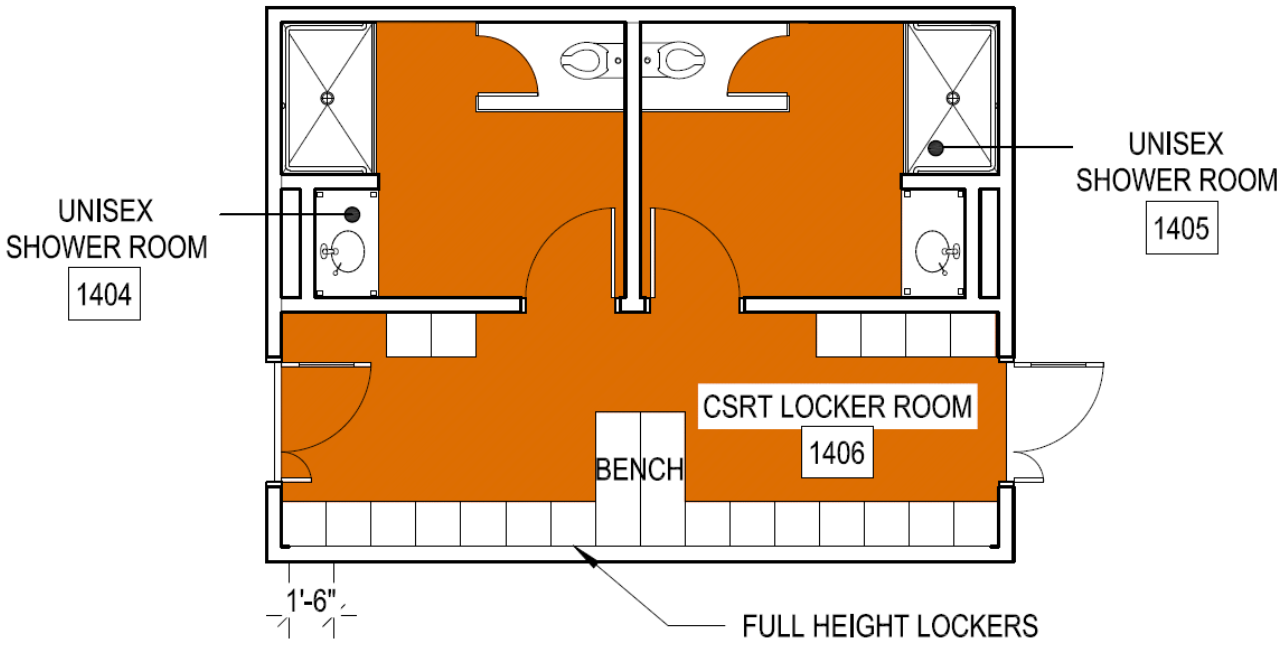
Office and Storage

- Refer to Appendix Two for typical cubicle requirements
- Rack Shelving

Room 1403

Screening Room – Adjacent to Room 1401.

- Refer to Area 1214A, B and C in Appendix 3, Section 3 Criminalistics for Room Diagram and specifications



Rooms 1404, 1405 and 1406

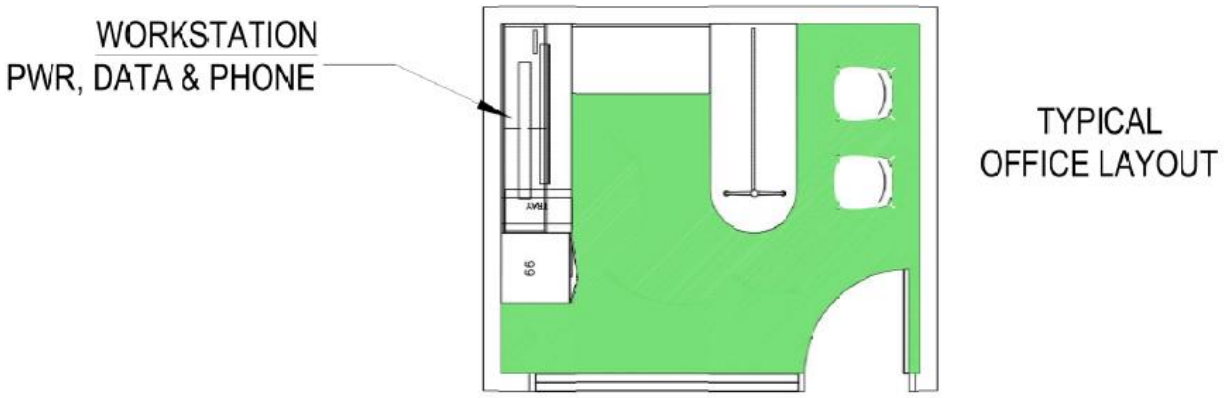
Shower Rooms and Locker Room

- Refer to Appendix two for fixture and dispenser requirements
- Full height lockers extra wide for CSRT clothing storage

6. DOJ Administration

The Southeast Wisconsin Attorney General's Office provides a Department of Justice presence for those communities in its role in keeping Wisconsinites safe and in upholding the rule of law to ensure a justice system that serves all citizens. The activities in this office include meetings and events with local officials in that part of the state. Offices may be used as workspace for Assistant Attorney Generals making court appearances nearby and by staff support to law enforcement agencies and crime victims. This will be a separate suite in the building with a separate secure entrance, which can be located off the building lobby.

3.6 DOJ Administration				
Area No.	Space Description	Square Footage Required	Staff Count	Comments
4001	Not used	0	0	
4002-1	Assistant AG Office	120	1	Office at 120 SF
4002-2	Assistant AG Office	120	1	Office at 120 SF
4002-3	Assistant AG Office	120	1	Office at 120 SF
4003	Crime Victim Rights Board Office	120	1	Office at 120 SF
4004	Conference Room	325	0	Adjacent to AAG and Victim Rights Offices
4005	Not used			
4006	Copy/Workroom	150	0	Millwork required
4007	Victim Rights Staff Workstations	192	3	Three 8'x8' cubicles workstations.
4008	Division Administrator's Office	192	1	Office at 192 SF
	ASF Totals	1,339	8	



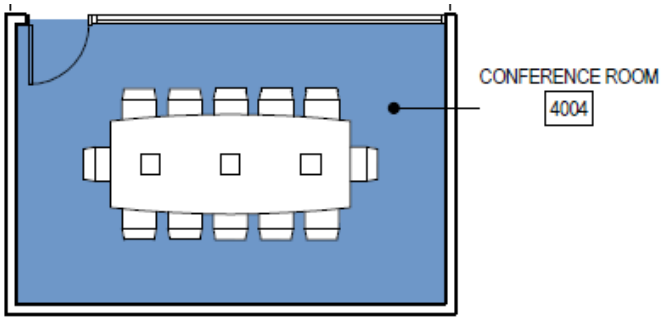
Rooms 4002-1, 4002-2, and 4002-3

Assistant AG Offices– 120 square feet

(Typical Private Office-Refer to Appendix 2 for additional requirements)

Typical for offices:

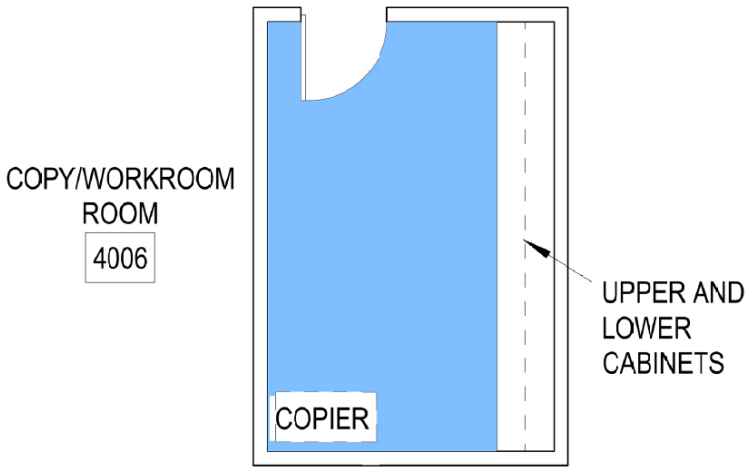
4003 Board office - 120 square feet



Room 4004

Conference Room

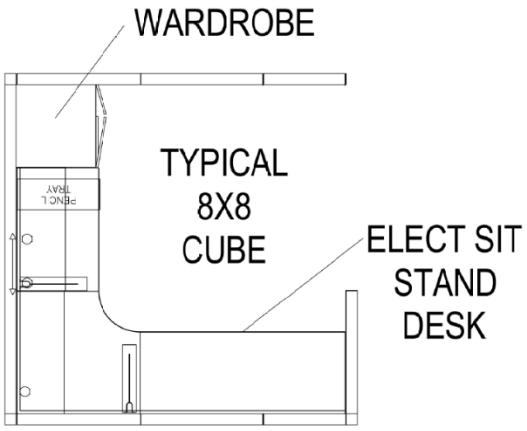
- Room for 12 people in Attorney General suite.
- Typical conference room – refer to Appendix Two for requirements
- Room to have light dimming capability
- Provide blocking, power and HDMI for smart board or wall monitor



Room 4006

Copy/Workroom

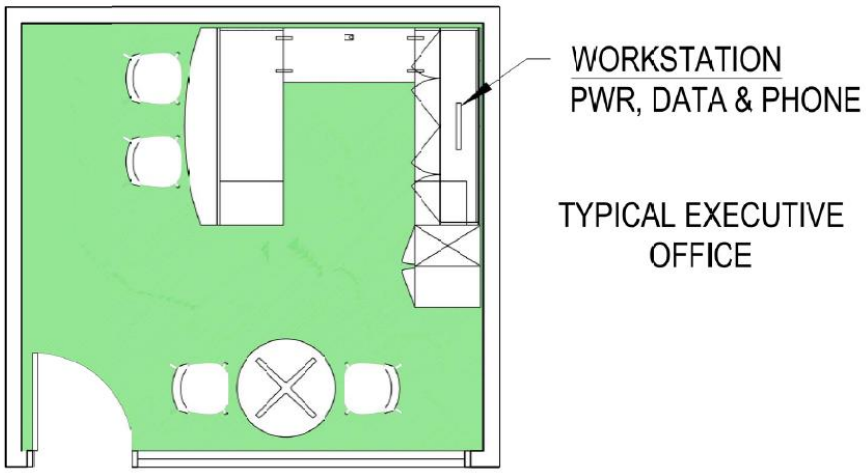
- Upper and lower plastic laminate cabinets with mail slots



Room 4007

Staff Workstations (3)

- Typical 8x8 Workstations - Refer to Appendix 2 for requirements



Room 4008

Division Administrators Office - 192 Square Feet

- Wood furniture
- Typical Executive Office-Refer to Appendix 2 for requirements

7. Building Amenities and Infrastructure – Shared Rooms

8. Building Amenities and Infrastructure – Building Components

The tables below summarize the required common shared rooms and building components.

3.7 Building Amenities and Infrastructure - Shared Rooms				
Area No.	Space Description	Square Footage Required	Staff Count	Comments
2000	Conference room	240		Locate Adjacent to lobby or Main entry in front of security desk
2001	Regional Training Center	3,000	0	Dividable into two equal spaces by sound attenuated partition.
2002-1	Men's Restrooms	215	0	
2002-2	Men's Restrooms	215	0	
2002-3	Women's Restrooms	215	0	
2002-4	Women's Restrooms	215	0	
2003	AV and Training Storage	240	0	
2004	Fitness Room	500	0	
2005	Unisex Locker Room and Shower	100	0	
2006	Men's Staff Locker Room and Showers	340	0	
2007	Women's Staff Locker Room and Showers	340	0	
2008	Lobby	1,400	0	With glass viewing of demonstration Lab
2008A	Security Station	64	1	Within lobby area, upgraded furniture cubicle.
2008B	Lobby Entry Vestibule	100	0	
2009	Building Break Room	525	0	
2010	Lactation Room	150	0	One room with multiple curtained areas, lockers, millwork with sink.
2011-1	Kitchenette	90	0	Within Controlled/Secured Area but centrally located and accessible to all lab sections.
2011-2	Kitchenette	90	0	Within Controlled/Secured Area but centrally located and accessible to all lab sections.
2012	Building Mailroom	220	0	
	ASF Totals	8,259	1	

The following list provides by room specialized and/or unique features, fixtures or construction required, and is not necessarily all-inclusive. All millwork, furniture (other than task chairs), lockers, exercise equipment and appliances are to be provided by the Lessor. **NOTE**: TVs, whiteboards, projection screens and electronic queuing system are to be provided by the Lessee. Refer to Appendix 2, Technical Specifications and Design Guidelines for additional information on Electrical, HVAC, plumbing, fire protection, lighting, telephone, data, finishes, doors, and hardware requirements.

Room 2000

Conference Room

- Room for 12-14 people adjacent to main lobby/building entry
- Typical conference room – refer to Appendix Two for requirements
- Room to have light dimming capability
- Provide blocking, power, data and HDMI cabling at 48”-60” AFF for smart board or wall monitor.

Room 2001

Regional Training Center

- Adjacent to or accessible from Main Building Lobby (2008)
- Seating Capability for 150 in tables and chairs
- Room to have the ability to divide in half with a sound attenuation moveable partition. Room controls, power and data should be split to accommodate when the divider is in use.
- Secondary exit could be to building exterior (compliance with Code)
- Audio visual capability for overhead projector
- Wire Loop Hearing Technology (Code for assembly space with more than 50 occupants).
- Power receptacles, wireless, and data jacks for attendees
- Blocking in walls, electrical and data for multiple monitors/smart boards

Room 2002-1 and 2002-2

Men's Restrooms

- Per code-Two locations minimum. One located off main lobby adjacent to the Training Center and one located centrally for staff use only on each floor.
- Restroom Accessories: Coat Hooks, shelves, mirrors, and touch less soap, faucets and paper dispensers are to be installed.
- Toilet partitions to be ceiling mounted. Include water saving fixtures and automatic flush for toilets and urinals.

Room 2002-3 and 2002-4

Women's Restrooms

- Per code-Two locations minimum. One located off main lobby adjacent to the Training Center and one located centrally for staff use only on each floor.
- Restroom Accessories: Coat Hooks, shelves, mirrors, and touch less soap, faucets and paper dispensers are to be installed.
- Toilet partitions to be ceiling mounted. Include water saving fixtures and automatic flush for toilets.

Room 2003

AV and Training Storage

- Adjacent to Regional Training Storage
- Locked double door entry.

Room 2004

Fitness Room

- Area for five (5) pieces of equipment (treadmills, bicycle, and weight machine)
- Card reader at entry
- Emergency landline telephone
- Blocking in wall at 48"-60"for TV monitor.
- Wall fan

2005, 2006 and 2007

Men's, Women's and Unisex Locker Rooms

- One staff locker room each for men and women in addition to a single unisex will be required. These rooms should be located near the fitness room. Each men's and women's locker room must contain at a minimum four shower stalls (one being an accessible shower stall), two water closets, two lavatories with touch free faucets, and a changing area with lockers. Provide touch free paper and soap dispensers, mirror over the sink, and one full length mirror. Unisex room should contain one of each item.
- Each men's and women's locker room should include:
- Thirty (30) 36"x12"x12" lockers
- Shelf and rod for clothes hanging
- Bench by lockers
- Card reader at entry
- Emergency landline telephone

2008 Lobby

- Main building entry with **(2008B)** interlock vestibule and a **(2008A)** 64-square foot security desk. The security desk should have a two-level transaction top for ADA visitor check in and power and data for printer for visitor badges (printer by lessee).
- Vestibules and lobby entrance should have card reader access, Intrusion detection and video surveillance.
- Seating for 20 to 25 people
- Five millwork display cabinets with locking glass fronts (4' x 4' x 6") built-in.
- The Lobby should have upgraded finishes (stone floor and base, drywall ceiling or soffits) and recessed lighting
- Space, blocking, electrical and HDMI or data cabling for a TV monitor.
- Interior viewing window into the demonstration lab for public tours to see into a sample lab area.

Room 2009

Building Breakroom

- Seating for 30 staff
- Locked storage closet with shelving within the room for supplies
- Two double compartment hot/cold-water stainless-steel sinks
- Three refrigerators with ice makers
- Upper and lower laminate cabinets
- Built-in trash & recyclable bins that are incorporated into lower cabinets
- Three (3) microwaves, one at ADA height
- 4' x 4' tables with four (4) chairs each
- Blocking, electrical and HDMI or data cabling for a TV monitor.
- Touch free paper and soap dispenser

Room 2010

Lactation Room

- One (1) room with three (3) private curtained areas. Small countertop and electrical outlet in each curtained area.
- Countertop with hot/cold water stainless steel single compartment sink
- Upper and lower laminate cabinets
- Under-counter refrigerator
- Ten (10) 12" x 18" kit lockers
- Lighting to have dimming capability
- Card Access at entry.
- Touch free paper, faucets and soap dispenser

Room 2011-1 and 2011-2

Kitchenettes

- Single compartment hot/cold-water stainless-steel sink, depth to reduce splash.
- Two (2) refrigerators with ice makers
- Upper and lower laminate cabinets
- Built-in trash & recyclable bins that are incorporated into lower cabinets
- Two (2) microwaves, one at ADA height
- Waterlines for commercial coffeemaker and for an ice machine in the refrigerators
- Located centrally, 1 per floor. Located near atrium or central gathering space

- Touch free paper, faucets, and soap dispenser

2012

Mailroom

- Upper and lower plastic laminate cabinets along one wall for sorting and supplies
- Mailroom should have a separately vented HVAC unit so that air from that room does not mix with any other building air.

3.8 Building Amenities and Infrastructure - Building Components				
Area No.	Space Description	Square Footage Required	Staff Count	Comments
2013-1	Janitor Closet	75	0	Stacked in core by restrooms, 1 per floor min
2013-2	Janitor Closet	75	0	Stacked in core by restrooms, 1 per floor min
2014	Janitor Storage	150	0	Ground Floor
2015A	Boiler Room	960	0	
2015B	Chiller Room	1,720	0	
2016	Air Handler Room/Rooms	4,560	0	Size and number of rooms is design dependent, space plus room for materials
2017-1	Telecom Room MER	150	0	Data Closet
2017-2	Telecom Room MER	150	0	Data Closet
2018A	Main Electrical Room	460	0	Two rooms: Main and Emergency
2019A	Electrical - Branch	230	0	Electrical Closets
2019B-1	Electrical - Branch A	230	0	Electrical Closets
2019B-2	Electrical - Branch B	230	0	Electrical Closets
2019C	Emergency Electrical Room	500	0	
2020A	Water Heater Room	0	0	Centralized water heaters, softeners, deionized system. Can be in Boiler Room
2020B	RO System	0	0	Can be in Boiler Room.
2021	Fire Protection Room	100	0	
2022	Centralized UPS	230	0	
2023	Generator Room	As Required	0	
2024-1	Security Control Room	100	0	Central location for security equipment
2025	DMARC	200	0	
2029	Fire Pump and Water Distribution	100	0	
2030	Server Room	200	0	
2031-1	Telecom Room TR	120	0	Tele/Data closets. One per floor min, Two per floor if required by design to reduce runs.
2031-2	Telecom Room TR	120	0	Tele/Data closets. One per floor min, Two per floor if required by design to reduce runs.
2032-1	Telecom Room BEF	100	0	Tele/Data closets. One per floor min, Two per floor if required by design to reduce runs.
2032-2	Telecom Room BEF	100	0	Tele/Data closets. One per floor min, Two per floor if required by design to reduce runs.
2033-1	BAS Equipt.	0	0	Locked panels space within electrical rooms 2019A, B-1, B-2.
2033-2	BAS Equipt.	0	0	Locked panels space within electrical rooms 2019A, B-1, B-2.
2033-3	BAS Equipt.	0	0	Locked panels space within electrical rooms 2019A, B-1, B-2.
2033-4	BAS Equipt.	0	0	Locked panels space within electrical rooms 2019A, B-1, B-2.
	ASF Totals	10,860	0	

All mechanical rooms will require card reader access, switched lighting and double doors if they contain equipment. Room square footage shown is estimated. Rooms shall have space for the equipment as well as storage of materials need to service equipment and workspace. Floors will be sealed concrete unless noted otherwise.

2013-1, 2013-2

Janitors Closet

- Mop sink
- Floor to ceiling metal shelving 24" O.C. 18" deep along one wall
- Tile or stainless-steel surround.

2014

Janitors Storage

- Floor to ceiling metal shelving 24" O.C. 18" deep along one wall
- Electrical outlets to charge floor cleaning equipment

2015A and 2015B

Boiler/Chiller Room

- Trench drain on floor for spill containment
- Water Heaters, water softener, RO and Deionization can also be in this room
- Card reader access

2016

Air Handler Room

- Card reader access
- Floor Drain

2017-1 and 2017-2

Telecom Rooms MER

- One per floor minimum. Multiple small rooms could be required to reduce longer runs. One wall to have plywood floor to ceiling and there should be space to mount server racks to the floor
- Card reader access at entry
- Security panels may be in these rooms if in a locked cabinet
- Room should have a heat sensor
- Room should have separate HVAC system (cooling)

2018A

Main Electrical Room

- Card reader access

2019A, 2019B-1, 2019B-2

Electrical Branch Rooms

- Card reader access

2019C

Emergency Electrical Room

- Card reader access

2021

Fire Protection Room

- AHU duct heaters and heat detectors
- Card reader access

2022

Centralized UPS

- Card reader access
- Fire control - VESDA smoke detection and pre-action sprinklers

2023

Generator room

- Trench drain on floor to containment basin for spill containment
- Card reader access

2024-1

Security Control Room

- Main location for security system, server for video
- Card reader access
- Fire control - VESDA smoke detection and pre-action sprinklers

2025

DMARC

- Secure card reader access on entry door

2029

Fire Pump and Water Distribution

2030

Server Room

- Static dissipative tile
- Double door entry with card reader access
- Fire Control: VESDA smoke detection and pre-action sprinklers

2031-1, 2031-2, 2032-1 and 2032-2

Telecom Room TR and BEF

- One per floor minimum. Multiple small rooms could be required to reduce longer runs. One wall to have plywood floor to ceiling and there should be space to mount server racks to the floor
- Card reader access at entry
- Security panels may be in these rooms if in a locked cabinet
- Room should have a heat sensor
- Room should have separate HVAC system (cooling)
- Fire control - VESDA smoke detection and pre-action sprinklers

2033-1, 2033-2, 2033-3 and 2033-4

BAS equipment-locked panel space within the electrical closets.

Appendix 4 - Additional Information

1. Vibration Criteria

The building needs to be designed to meet vibration criteria for two conditions, foot-fall vibrations and vibrations caused by any passing traffic or modes of transportation near the property.

General office areas will be designed to not exceed 16000 micro inches per second (mips). Spans, load and deflection criteria may control, leading to significantly lower than 16000 mips performance in office areas.

The following is a list of known equipment in the laboratories with vibration considerations:

- 1xJEOL JSM 6480LV SEM
- 2xOlympusSZ60 Stereoscopes
- 2xOlympus Comparison Microscope BX40
- 1xOlympus BH2 comparison Microscope
- 1xLeitz Laborlux D fluorescence scope
- Various precision balances manufactured by Mettler Toledo

Based on a review of technical specifications for this equipment, a vibration Class B environment (1000 micro-in/s RMS vibration velocity) is required for the SEM and a Class A environment (2000 micro-in/s RMS vibration velocity) is required for the other microscopes and precision balances.

The structural design and a final vibration report shall be part of the construction documents phase of the project.

2. Laboratory Equipment

1. Laboratory Fume Hoods
    a. Fume hoods must comply with DFDM master specifications

    b. Size: Multiple sizes as noted.
    c. Base Cabinets: Metal Flammable Storage, Vented Acid waste storage or as noted on Room Data Sheets.
    d. Sash: Counter weighted vertical rising sash.
    e. Sash Glazing: Tempered ¼" safety glass.
    f. Liner: Modified epoxy resin liner, adjustable baffle.
    g. Worktop: Cast epoxy resin worktop.
    h. Cupsink: As noted
    i. Interior light: LED.
    j. Electrical: Two 120v receptacles.

k. Lab Services: As noted

2. Bio-Safety Cabinets
    a. BSL-2 areas: Class II/Type A1, 4’ and 6’ Cabinet as noted.
    b. All cabinets will be by Baker, Labconco, Nuaire or equal as described in CDC/NIH Primary Containment for Biohazards. HEPA-filtered exhaust air from a Class II/A1 & A2 biological safety cabinet will be fully or partially recirculated into the room. The face velocity into the bio-safety cabinets and laboratory fume hoods will be designed in accordance with NSF 49 and ASHRAE 110 (typically controlled for 100 feet per minute velocity through the sash opening when it is in the normal operating position).

3. Other Laboratory Equipment
    a. All laboratory equipment indicated on the Room Diagrams shall be provided by the Developer unless otherwise noted on the Laboratory Equipment spreadsheet included herein.

3. Laboratory Furnishings

1. Metal Laboratory Casework
    a. Adjustable metal laboratory casework systems by Kewaunee Scientific, Mott or equal as approved by Owner.
    b. The casework system will include spline and overhead ceiling panel systems for lab gasses and power.
    c. Material: Powder Coated Metal in colors as selected by Architect.
    d. Fixed Mounting: Demountable, C-Frame, height adjustable casework where noted. Fixed countertops are to be wall mounted where noted. All rolling casework or cabinets to be mounted on heavy duty wheels with removable top-drawer section. In BSL2 laboratories the top-drawer sections to be stackable to form additional rolling casework units.
    e. Pulls: 4" Stainless steel wire pull.
    f. Hinges: Five knuckle stainless steel
    g. Slides: Manufacturers standard telescoping slides, 100 lb. minimum.
    h. Latches: Friction, magnetic, or self-closing type.
    i. Locks: Manufacturer’s standard, US 26 finish.
    j. Floor levelers: Fixed casework: Screw type, fully adjustable.
    k. Adjustable tables: Telescoping painted metal square tube steel adjustable in 1” increments.
    l. Shelves: Steel, adjustable, steel standards.
    m. Shelf Supports: Metal, manufacturer’s standard for wall and bench supports. Provide floor mounted self-supporting shelf systems for all reagent racks and island bench cabinets for all suspended casework.
    n. Reagent Racks: Stainless Steel.
    o. Worktops: Cast epoxy resin (white or gray) or stainless steel
    p. Sinks: Cast epoxy resin, stainless steel, or solid surfacing, integral with tops.
    q. Eyewash + Hose: Deck mounted, single action, chrome finish with 8ft. Reinforced PVC hose with squeeze lever-operated valve, spray type outlet head.
    r. Emergency Shower: Fully accessible, barrier free recessed model by Broen, Guardian, Hawes, or approved equal.
    s. Pegboards: Cast epoxy resin with white polypropylene pegs, mechanically fitted and friction mounted, removable. Stainless steel drain tray with clear polypropylene drain hose.

t. Balance Tables: 3” Cast epoxy table equal to Kewaunee model K7-6590-00.
u. Service Fittings: Epoxy coated cast bronze by Chicago or Water Saver, or manufacturer’s standard as approved. Specific to lab gas requirements (ie, ball valve, needle point valve, quick connect, handle type, pressure regulator, etc.
v. Faucets: As noted above, with vacuum breakers or aspirator as noted.
w. Electrical Fittings: Manufacturer’s standard stainless-steel enclosures and faceplates. All electrical services fittings to be wall mounted at C-Frame metal casework.
x. Raceways: As noted.

Movable Tables: Demountable, C-Frame, height adjustable casework where noted. All rolling casework or cabinets to be mounted on casters with lockable wheels and with removable top-drawer section. The top-drawer sections to be stackable to form additional rolling casework units. Overhead cabinets/shelving, undermount cabinets & drawers, electrical/gas connections for ‘quick connect’ to building systems

Appendix 5 – Form to Submit Proposer's Questions

FORM TO SUBMIT PROPOSER'S QUESTIONS

STATE OF WISCONSIN, DEPARTMENT OF ADMINISTRATION

MILWAUKEE STATE CRIME LABORATORY | REQUEST FOR PROPOSALS No. 455-005

Instructions: At or before **2:00 pm CT on January 22, 2021,** Proposers may submit written requests for clarification of this RFP and/or questions to the DOA by utilizing this form. Please submit the completed form via email to doarealestateinfo@wisconsin.gov. Written responses to properly submitted relevant requests for clarification and/or questions from Proposers will be posted by the DOA on the following website: https://doa.wi.gov/Pages/DoingBusiness/Current-Real-Estate-RFPs-and-RFIs.aspx by 2:00 pm CT on January 29, 2021. **Solicitation of information from the State, DOA, or tenant agency personnel other than through this form and process is prohibited and may result in disqualification of the Proposer**.

* * *

Contact Information: All fields must be completed by the Proposer submitting the form.

Name (Please print): _____

Proposer Team: _____

Company/Affiliation: _____

Email Address: _____

Telephone Number: _____

RFP Section/ Appendix No.	Page No.	Request for Clarification and/or Question

Appendix 6 – Registration and Release of Liability Form

REGISTRATION AND RELEASE OF LIABILITY FORM

STATE OF WISCONSIN, DEPARTMENT OF ADMINISTRATION

MILWAUKEE STATE CRIME LABORATORY | REQUEST FOR PROPOSALS No. 455-005

Instructions: Any short-listed Proposer may be required to attend a tour of the existing Milwaukee Crime Laboratory (Laboratory). Each Proposer member wishing to attend the tour **must pre-register** by completing this form and submit the completed form via email to: doarealestateinfo@wisconsin.gov. on or before the form's required due date**.** This Registration and Release of Liability Form can accommodate the signature of only one person. **Proposer members who do not pre-register will not be allowed to attend the tour**.

Pre-registered Proposer members will first meet and check-in for the tour at the Laboratory located at 1578 South 11th Street, Milwaukee, Wisconsin 53204 on the date and time provided in the invitation. The tour is expected to last one (1) hour. **If invited, at least one member of the Proposer's team must attend the tour. All attendees must pre-register, will be fingerprinted and DNA-swabbed, and attend the mandatory tour or their Proposal may be disqualified**.

* * *

The undersigned hereby releases the State of Wisconsin, including all departments, agencies, boards, employees, and/or any tenant(s), from liability for any injury and/or damages (if any) resulting from the undersigned's tour of the Laboratory.

The undersigned also agrees to take reasonable precautions to prevent any damage to the Laboratory arising from their tour thereof and to replace, or fully compensate the State of Wisconsin at replacement value for any damages to the Laboratory arising from the tour of the Laboratory.

Signature:_____ Date: _____

Name (Please Print): _____

Proposer Team: _____

Company/Affiliation: _____

Telephone Number:_____ E-mail: _____

Company Address: _____

Do you require special tour accommodations for a disability? (check one) Y e s :_____ No: _____

If yes, please describe: _____

Appendix 7 – Proposer's Response Sheet & Detailed Estimated Project Costs

Proposer's Response Sheet

Proposed Building Address_____ Proposal Date_____

RENTAL RATE PROPOSAL:

I. SQUARE FOOTAGE: As defined Section III D 7 a) 2 of the RFP

A) Total usable square feet _____

B) Total rentable square feet _____

II. GROSS RENTAL RATE CALCULATION: All amounts must be listed as annual amounts per rentable square foot

a)	Construction Cost (includes all buildout costs, excludes Tenant's equipment)	$_____	
b)	Land Cost	$_____	
c)	Furniture and Installation Costs (e.g., workstations, breakrooms, etc.)	$_____	
d)	Total Project Costs - sum of (a), (b) and (c)		$_____
e)	Proposed Annual Base Rent per Rentable Square Foot based upon Actual Project Cost (excludes all operating expenses)		$_____/sq. ft
f)	Estimated Operating Expenses (sum of 1-8 below)		$_____/sq. ft.
	1) Real Estate Taxes	$_____/sq. ft.	
	2) Insurance	$_____/sq. ft.	
	3) In-Suite Janitorial	$_____/sq. ft.	
	4) Electricity	$_____/sq. ft.	
	5) Natural Gas	$_____/sq. ft.	
	6) Repairs & Maintenance	$_____/sq. ft	
	7) Common Area Maintenance (CAM)	$_____/sq. ft	
	8) Miscellaneous Operating Expenses	$_____/sq. ft	
	Gross Rental Rate – sum of (e) and (i)		$_____/sq. ft.

Notes: The State requires a modified Gross Lease with a Gross Rental Rate which contains base rent and all operating expenses. Estimates of all operating expenses will be paid on a monthly basis along with Base Rent. Within 90 days of the end of lease year, all operating expenses will be reconciled to actual costs. Net overpayments would be refunded to Lessee and net underpayments would be made to Lessor.

III. TERMS AND CONDITIONS:

Length of Lease (Initial Lease Term)	Twenty (20) years
Base Rent Annual Escalator, if applicable	_____%
Operating Expense Annual Escalator	___1.75___%
Renewal Options	Three 5-year options
Base Rent Renewal Rental Rate	$_____.__
Tenant Access Date (see Targeted Tenant Access Date)	One month prior to Occupancy Date
Occupancy Date (see Targeted Occupancy Date)	_____, 20___
Rent Commencement Date	_____ ___, 20___

Using the information above, complete the following table by lease year.

Lease Year Initial Lease Year	Base Rent	Estimated Operating Expense	Estimated Annual Rent	Option to Purchase Purchase Price
Year 1				
Year 2				
Year 3				
Year 4				
Year 5				
Year 6				
Year 7				
Year 8				
Year 9				
Year 10				
Year 11				
Year 12				
Year 13				
Year 14				
Year 15				
Year 16				
Year 17				
Year 18				
Year 19				
Year 20				
1st Renewal Term				
Year 21				
Year 22				
Year 23				
Year 24				
Year 25				
2nd Renewal Term				
Year 26				
Year 27				
Year 28				
Year 29				
Year 30				
3rd Renewal Term				
Year 31				
Year 32				
Year 33				
Year 34				
Year 35				

IV. SUBMITTED BY:

Proposer's Contact Information	**Proposer's Agent Contact Information (if different)**
Company Name	Agent/Firm Name
Full Address (street and city)	Full Address (street and city)
Telephone Number (Office/Mobile)	Telephone Number (Office/Mobile)
Email Address	Email Address
Contact Name	Contact Name
Signature	Signature

Appendix 7 (Continued)

Estimated Project Costs

LAND/SITEWORK/INFRASTRUCTURE/LANDSCAPING

Land

# of Acres	Cost/Acre	Total	
			(a)

Site Preparation/Infrastructure/Landscaping

Site Preparation		(b)
Sitework		(c)
Utilities Infrastructure		(d)
Landscaping		(e)

Proposed Land Costs (amount in (a) - (e) above) (f)

BUILDING

Office Space

# of Gross SF (GSF)	Est Cost/GSF	Total	
			(g)

Publice Areas (e.g., conference rooms, breakroom, restrooms, etc.)

# of GSF	Est Cost/GSF	Total	
			(h)

Lab Space

# of GSF	Est Cost/GSF	Total	
			(i)

Estimated Building Costs (sum of (g) - (i)) (j)

Parking

Surface Lot

# of Stalls	Est Cost/Stall	Total	
			(k)

Above Ground Structured Parking, if applicable

# of Stalls	Est Cost/Stall	Total	
			(l)

Underground Building Structured Parking, if applicable

# of Stalls	Est Cost/Stall	Total	
			(m)

Total Estimated Cost of Parking (sum of (k) - (m)) (n)

Total Estimated Project Costs (Sum of (f), (j) & (n) above) (o)

FURNITURE & INSTALLATION (Cost to be Amortized Over 5 Years)

# of Workstations	Est Cost/Workstation	Total	
			(p)

# of Private Office Desks	Est Cost/Desk	Total	
			(q)

# of Chairs	Est Cost/Chair	Total	
			(r)

Total Estimated Cost of Furniture and Installation (sum of (p) - (r)) (s)

Appendix 8 – Designation of Confidential and Proprietary Information Form

DESIGNATION OF CONFIDENTIAL AND PROPRIETARY INFORMATION FORM

STATE OF WISCONSIN, DEPARTMENT OF ADMINISTRATION

MILWAUKEE STATE CRIME LABORATORY | REQUEST FOR PROPOSALS No. 455-005

The attached material submitted in response to RFP No. 455-005 includes proprietary and confidential information which qualifies as a trade secret, as provided in §19.36(5), Wis. Stats., or is otherwise material that can be kept confidential under the Wisconsin Open Records Law. As such, we ask that certain pages, as indicated below, of this proposal response be treated as confidential material and not be released without our written approval. Prices always become public information when proposals are opened, and therefore cannot be kept confidential.

Other information cannot be kept confidential unless it is a trade secret. Trade secret is defined in §134.90(1)(c), Wis. Stats. as follows: "Trade secret" means information, including a formula, pattern, compilation, program, device, method, technique or process to which all of the following apply:

1. The information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.
2. The information is the subject of efforts to maintain its secrecy that are reasonable under the circumstances.

We request that the following pages not be released:

Item	Section	Page(s)	Topic
1			
2			
3			
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IN THE EVENT THE DESIGNATION OF CONFIDENTIALITY OF THIS INFORMATION IS CHALLENGED, THE UNDERSIGNED HEREBY AGREES TO PROVIDE LEGAL COUNSEL OR OTHER NECESSARY ASSISTANCE TO DEFEND THE DESIGNATION OF CONFIDENTIALITY.

Failure to include this form in the proposal response may mean that all information provided as part of the proposal response will be open to examination and copying. The State considers other markings of confidential in the proposal document to be insufficient. The undersigned agrees to hold the State harmless for any damages arising out of the release of any materials unless they are specifically identified above.

Company Name:	
Authorized Representative (Signature)	
Authorized Representative (Type or Print Name):	
Date:	

Appendix 9 – Gross Lease Template and Schedules I & II

The Gross Lease template can be found at: https://doa.wi.gov/DFDM_Documents/GrossLeaseTemplate.pdf

SCHEDULE I

The Lessor, **at Lessor's cost**, shall furnish to the Lessee during the term of this Lease, as part of the rental consideration, the following:

The environmental control system shall maintain humidity levels and temperatures as provided by DOJ.

1. Provide, maintain and service heating, air conditioning, plumbing and ventilating equipment as per manufacturers and/or installers recommendations.

   Must be compliant with State of Wisconsin Administrative Codes SPS 363 and 364, and ASHRAE 62.1-2016, in addition to all other applicable Federal, State and local codes. Relative to ventilation codes, where SPS 364 and ASHRAE 62.1-2016 conflict, apply SPS 364 to existing HVAC and ASHRAE 62.1-2016 to new HVAC equipment selections ensuring in all circumstances, that HVAC ventilation requirements will always meet or exceed State of Wisconsin Administrative Code SPS 364 minimum guidelines.

   Lessor shall meet the following requirements:

   a) All new exterior walls and ceilings must meet minimum insulation code requirements.
   b) Provide perimeter heating for exterior walls if required to meet seasonal set-points.
   c) Provide space heating for airlocks and lobbies, if necessary.
   d) Change air-handling equipment filters quarterly.
   e) Provide automatic temperature adjustment capability for unoccupied modes.
   f) Provide separate venting/fans for restrooms.
   g) Provide an approved "Test and Balance" report, for newly constructed and/or remodeled space, which is taken and completed after the space is fully occupied and the construction and/or remodeling projects are completed.
   h) Placement of thermostats throughout the Premises must be coordinated with the installation of furniture to avoid having the thermostats blocked.
   i) Thermostats is all rooms to be placed above light switch, unless zoning does not allow.
   j) The use of non-tenant adjustable thermostats or locking thermostat covers.

2. Install and maintain fire extinguishers according to any governmental building code and underwriters' (UL) recommendations.

3. Provide safe drinking water with hot and cold running water for restrooms, water fountains, counter sinks and janitorial facilities. Such drinking water shall meet minimum State of Wisconsin Drinking Water Quality Standards.
4. Provide all keys, as needed and requested by the Tenant.

5. Provide Water & Sewer and Heat & Air conditioning.

6. Provide electricity for lights and other electrical equipment necessary for operation of the Premises.

7. Furnish, install and replace during the term of this Lease and any extension thereof, light bulbs, fluorescent tubes, starters, ballasts or transformers.

8. All demised and common areas of the facility and exterior areas, including parking, utilized under this lease, including restrooms and any elevator(s) ***must meet all requirements of new construction*** for accessibility, health and safety standards in compliance with and in accordance with Wisconsin Administrative Code, Chapters SPS 332, 361-365, and the ANSI A117.1. ANSI Regulations will take precedence over Wisconsin Administrative Codes, except when such codes shall be equal to or exceed the ANSI Regulations. All elevators shall meet the Wisconsin Administrative Codes, SPS 318 and SPS 362 and ANSI A117.1.

9. Furnish building occupancy or use permit(s) if required.

10. Provide walk-off mats at each entrance. Replace as needed when worn.

11. Furnish all necessary janitorial and maintenance equipment and supplies for restrooms including soap, towels and toilet tissue.

12. Lessor is to provide all services, supplies and equipment required to clean and keep clean all areas of the building, sidewalks, parking areas, and grounds. This includes, but is not limited to, the plowing and removal of snow, ice removal and salting, removal of trash, pest control and the proper disposal of recyclable materials separated by Lessee. Proper disposal of materials shall comply with sections 16.15(3) and 287 Wis. Stats., which require recycling the following items: aluminum containers, corrugated paper or other container board, foam polystyrene packaging, glass containers, magazines, newspaper, office paper, plastic containers, steel containers, and waste tires. Lessor shall provide a central collection area and separate collection containers as require for the deposit of all such recyclable and non-recyclable waste generated at the leased premises. Lessor and Lessee further agree to comply with all applicable municipal recycling requirements adopted under section 287.13, Wis. Stats.

13. LESSOR PERSONNEL

    13.1. Identification. The Lessor shall provide a list of the names, dates of birth, and addresses of all Lessor's employees, contracted personnel, and subcontracted personnel (collectively, "Personnel") who will have any access to the Premises, specifying each such person's connection to the Lessor, the services that will be performed on the Premises by each person, and other particulars, as the DOJ may require. The Lessor shall furnish all if the Personnel with a means of identifying themselves as agents, or employees of the Lessor assigned to perform services at the Premises and furnish the DOJ with Lessor ID's on these Personnel.

    13.2. The DOJ reserves the right to refuse any person providing services who, in the sole opinion of the DOJ, would be undesirable; provided said reason is a lawful reason. A DOJ employee must be present on the premises at all times while any other non-DOJ personnel is on the premises.

13.3. Background or Criminal History Investigation. Before any Personnel is permitted on the Premises, the DOJ will have the right to require a fingerprint-based background check. The background check will be performed by the DOJ. DOJ holds the right to conduct periodic re-checks of Personnel. If any of the stated Personnel is not acceptable, to the DOJ in its sole opinion as a result of the background or criminal history investigation, the DOJ will require prompt replacement of the person.

13.4. Right to Approve Changes of Personnel. If there are any changes in Personnel, the DOJ must be given reasonable notice of any newly assigned Personnel so that the DOJ can perform a background check on the new Personnel before such Personnel is granted access to the Premises. Based upon the results of the background check, the DOJ shall have the absolute right to approve or disapprove a proposed change of Personnel. Any new Personnel cannot access the Premises until the DOJ informs Lessor that the background check has been completed with satisfactory results. DOJ shall provide the background check and notify Lessor in writing (or via email) of the background results within 72 business hours from when Lessor notifies DOJ in writing (or via email) of a change in Personnel. If, on more than one occasion, Lessor permits an employee to work on the Premises without identifying that person to DOJ or without following the procedures outlined above, and Contractor fails to implement a corrective action plan approved by the DOJ, the DOJ reserves the right to cancel this Lease.

13.5. Personnel Removal. Should the DOJ feel that the removal of Lessor Personnel is merited, Lessor and the DOJ will discuss the matter, and if both parties cannot mutually agree on an alternate resolution, the DOJ may direct the Lessor to remove or reassign Personnel; however, the DOJ's right to do so shall be a lawful reason and does not implicate the DOJ as a party to any of the Lessor's obligations in the Lease.

13.6. Notification of Personnel Removal. The Lessor shall inform DOJ by the close of business on the first business day following the day any Personnel that has access to the DOJ's information systems is terminated from employment.

14. Janitorial Services: The following is a list of required activities to be performed at least as often as indicated. While this list may omit some minor activities, it is the intent of this list to promote a building with a High Standard of Cleanliness.

AREA AND FREQUENCY INDICATION:

DAILY

a) All Common Areas (Entrances/ Hallways/ Stairways/Snack or Break Area/Janitor Closet/Storeroom/etc.) - Clean glass in doors and metal framework; Empty/clean exterior ashtrays, waste containers and replace can liners; Sweep, mop floor, steps, landings, etc.; Vacuum carpet and walk-off mats and remove spots/stains; Clean, de-scale and polish water fountains; and spot clean walls and doors.
b) Restrooms - Clean and disinfect dispensers, sinks, toilets, urinals and polish bright work.
c) Office Areas - Empty waste containers and replace can liners, if used; Dust and/or damp wipe accessible furnishings, fixtures, vents and sills; Spot clean doors, walls and sidelights; Sweep/mop floors; and vacuum carpet and remove spots/stains.

ONCE WEEKLY

a) Restrooms - Clean inside toilet bowls and urinals; and damp wipe walls.
b) Offices - Common Areas - Dust and/or damp wipe furnishings, moldings, handrails, fixtures, etc. Clean/disinfect and polish brightwork.
c) Offices - Vacuum upholstered furniture; and edge-vacuum carpet

SEMI-ANNUAL

a) Resilient/Hard floor Areas - Strip, seal and refinish floors in spring and fall.
b) Carpet Areas - Wet extract carpet and apply soil retardant in spring and fall.
c) Restrooms - Wash walls, ceilings, doors and partitions in winter and summer.
d) Windows - Wash windows and storms both inside and outside and vacuum screens in spring and fall.
e) Light Fixtures - Clean fixtures and diffusers.
f) Air Vents - Clean supply air diffusers and return air grilles.

15. Provide sufficient onsite parking, which is understood by the parties hereto to include 24/7 parking for staff and client owned vehicles.

16. Provide snow and ice control and removal. Snow and ice will be removed from designated walking surfaces on Lessor controlled parking lots and sidewalks on building grounds by 6:30 AM each working day and 9:00 AM on non-working days. These walk areas shall be maintained in a reasonably slip resistant condition and passable for people with disabilities (i.e. individuals who use walkers, canes, crutches, wheelchairs, etc.). Walking surfaces will be maintained snow and ice free during working hours. Particular attention shall be paid during on-going snowfalls, ice storms or when melting snow and ice re-freezes on walking surfaces. Parking lots shall be cleared within 24 hours of a 2-inch or greater snowfall (or sooner if weather permits).

    In the event, that the Lessor fails to remove the snow and ice from the leased facility in accordance with the terms of the paragraph above, the Lessee may cause the same to be done and deduct the cost of such snow and ice removal from the rent due the Lessor.

    Lessee's removal of snow and ice shall not release Lessor of liability or obligation under the provisions of this lease or any law or regulation.

17. Lessor agrees to construct and/or remodel and equip the building in accordance with State and local building codes, in accordance with mutually agreed upon plans attached hereto.

18. Beginning in Year 11 of the Initial Term, Lessee may request Lessor to re-carpet and/or repaint the Premises, at Lessor's cost. Lessor shall complete the repainting and re-carpeting by a mutually agreed upon date, but not later than twelve (12) months from the date of Lessee's written request. Lessor at Lessor's sole cost is responsible for moving Tenant's furniture and equipment to accommodate the repainting and re-carpeting of the Premises. Carpet and paint color

selections must be mutually agreed to by Lessor and Lessee, in writing. Lessor will provide 4% attic stock prior to commencement date of re-carpeting.

If for any reason the Premises is not re-carpeted and/or repainted as provided herein, the Lessor shall provide the Lessee with a rent credit for these avoided costs. The credit shall be equal to the sum of $6.00 per square foot for re-carpeting and $1.75per square foot for repainting, subject to annual increases of 1.75% beginning with the second year of the initial lease term. In the event, that Lessor partially re-carpets or repaints the Premises, as provided herein, the credit shall be reduced by any actual costs incurred. This credit shall be applied against Lessee's monthly rent beginning in the thirteenth month following Lessee's execution of the renewal option under paragraph 5 of the Lease. Lessor may not choose on its own to not perform the above work in order to avoid Lessor's obligation. The credit calculation above does not limit Lessor's cost of this work.

19. The fire protection, alarm and detection system shall be inspected, maintained and tested in accordance with NFPA, by licensed contractors and fully documented. Documentation shall be made available to Lessee, within ten (10) days of Lessee's written request.

20. In the event the Lessor does not furnish the aforementioned services and items in this Schedule or the demised Premises are un-tenantable for any other reason which is not due to the negligence of the Lessee, the Lessee may provide such services and items at its own expense and deduct these expenses from rental payments, provided Lessee notifies Lessor thirty (30) days in advance of any deduction, and provides an itemized statement listing the services and items not being furnished.

SCHEDULE II

CONSTRUCTION REQUIREMENTS

RFP #455-005 contains the Construction Requirements and Specifications. Architect's final construction drawings and specifications will be used to supplement the information contained in the RFP. In the event there is any conflicting information between these two sources, the Architect's final construction drawings and specifications shall prevail.